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# THE FAR EASTERN REVIEW

VOL. VI.

MANILA, SHANGHAI AND YOKOHAMA, NOVEMBER, 1909.

No. 6.

## RAILWAYS IN CHINA ❖ 1909 ❖



His Excellency HSU SHIH CHANG,  
President of the Board of Communications

Railway Loan Agreements  
and  
Their Relation to the Open Door

### A PLEA FOR FAIR PLAY TO CHINA

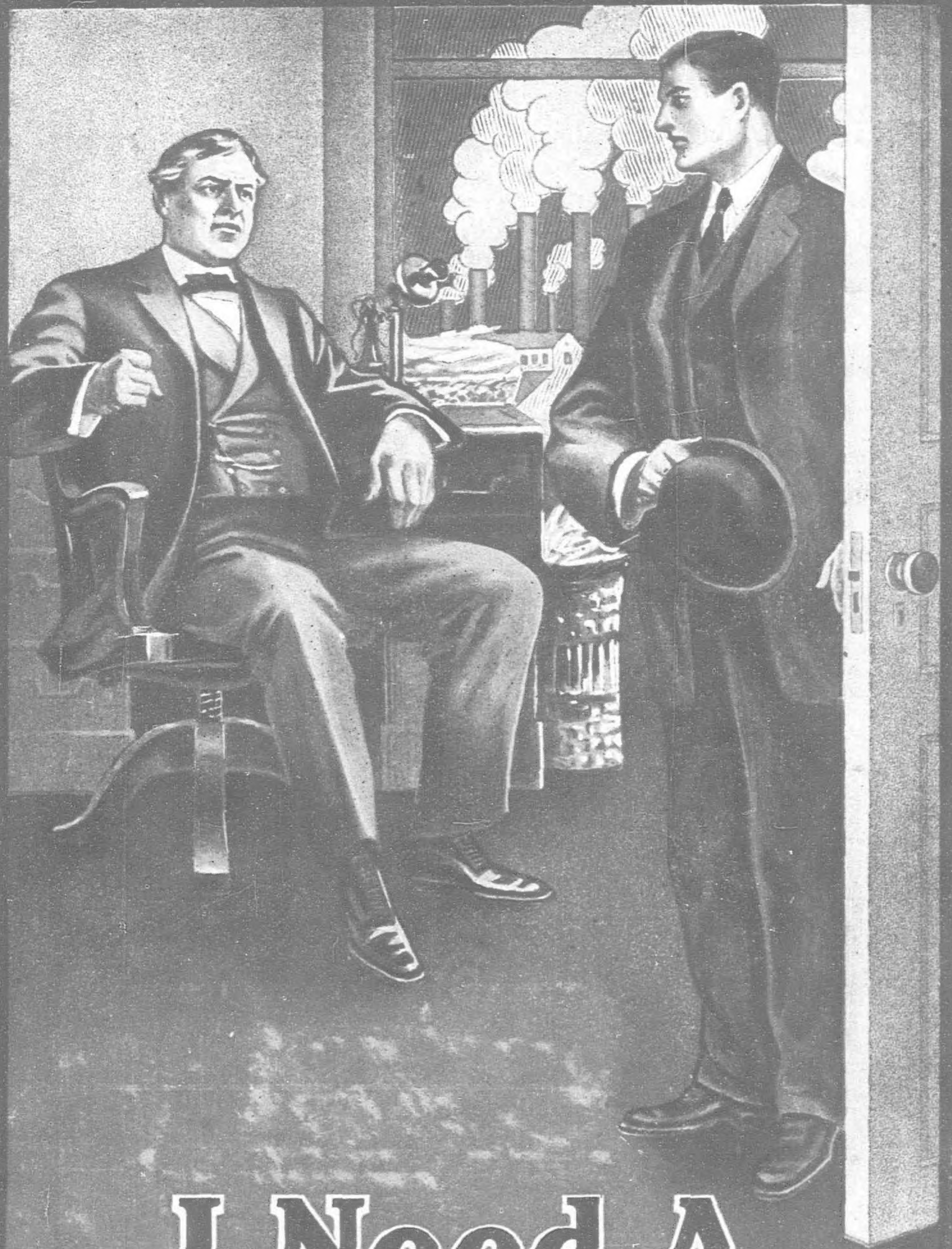
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November, 1909.



**His Excellency HSU SHIH-CHANG,**

PRESIDENT OF THE BOARD OF POSTS AND COMMUNICATIONS

A native of Chili Province, has filled the posts of Grand Councillor, Minister of Government Council, President of Board of Police, President Board of Interior, and other high offices. Appointed first Viceroy or Governor General of Manchuria in April, 1907, and in May of this year was transferred to Peking, as head of the Railway Board. In August he was also appointed to the Office of Director General of the Tientsin-Pukow Railway. One of China's capable and honest executives.



# THE FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

VOL. VI. MANILA, P. I., SHANGHAI, AND YOKOHAMA, NOVEMBER, 1909 No. 6.

## RAILWAY LOAN AGREEMENTS AND THEIR RELATION TO THE OPEN DOOR



HIS EXCELLENCY WANG TA-HSIEH,  
VICE-PRESIDENT OF THE YUCHUANPU  
(BOARD OF COMMUNICATIONS.)

### A PLEA FOR FAIR PLAY TO CHINA

BY  
GEO. BRONSON REA.



HIS EXCELLENCY SHEN YUN-PEI,  
ACTING VICE-PRESIDENT OF THE YUCHUANPU  
(BOARD OF COMMUNICATIONS.)

WHEN China first conceded to Belgium and America the right to build her main trunk line, she distinguished between them by retaining control of the funds in the Belgium Agreement, and conceding to Americans full power over expenditure on their section. At that time the utter ignorance about railway matters amongst the Chinese induced them to grant exceptional powers to foreigners, and the question of the honesty of their officials was not made an issue in the agreements. Both of these contracts have since lapsed and are only interesting as marking a turning point in China's history, by creating a precedent since followed up by other moneylenders exacting full control over railway loan funds.

On the 17th day of June 1898, when China contracted her foreign loan for the Peking-Newchwang Line, she voluntarily admitted the principle that her officials were incompetent to honestly administer the proceeds of a foreign loan to the satisfaction of the investor. And having once placed her financial probity in question, she has been forced through successive similar agreements to follow a practice which no other nation in the world would tolerate for an instant. Through all subsequent loan negotiations China has been made to feel the mortification of the foreign assumption that although her security is good, her integrity is rotten. On the assumption that Chinese officials could not be entrusted with full powers of expenditure, only honest and capable foreigners could control loan funds, or as in later years when China reasserted a little of her dignity, this privilege was accorded to her under foreign check and supervision of accounts. In short, while China could give ample security and pay good interest, she could not be trusted with the expenditure of the money. And under the provisions of loan agreements based on these principles, China has been deprived of authority in her own affairs, and the national commercial and political interests of money lenders advanced without coming into direct conflict with the Open Door Doctrine.

Under the terms of the Peking-Newchwang Loan for £2,300,000, the British and Chinese Corporation entered into an agreement with China for 45 years, which gave them practical control of the property, and inserted a wedge for British railway principles which, if driven home, would effectively destroy the chance of American or Continental railway supplies gaining a foothold in China. This loan was guaranteed by a first mortgage on the entire property between Peking and Shan-hikwan, and on the freights and earnings of the new lines when constructed. This in itself is sufficient guarantee for a loan in any other country, but we find in addition that the Imperial Government of China unconditionally guaranteed and declared itself responsible for the payment of the principal and interest.

The term was for 45 years, and China engaged herself not to redeem or convert the loan except as arranged with the Corporation, and no further loan was to be raised on the same security except through the Corporation, and the lines named in the Agreement were never to be alienated or parted with. This insured the Corporation a lien on the road during the 45-year life of the Agreement.

One of its first provisos was the expenditure of about \$1,000,000 gold for new rolling stock as recommended by the Engineer, and further along we find that during the currency of the loan the Chief Engineer of the Railway shall be a British subject, and the principal members of the Railway Staff shall also be Europeans, who could be appointed by the Chinese Administrator General, but





H. E. TSEN CH'UN-HSUAN,  
EX-PRESIDENT OF BOARD OF COMMUNICATIONS.

dismissed only in the event of misconduct or incompetency, after consultation with the Chief Engineer. Or in other words, the latter had powers superior to the Chinese head of the Railway. A European accountant was also provided for, to act with the Administrator General and Chief Engineer in the supervision of Receipts and Expenditures. Probably no loan ever made was so amply secured and safeguarded. Mortgage on the property was strengthened by Imperial Government guarantee, and as a check on this ample security, a Chief Engineer, named by the Corporation, had practical control of affairs. The price of the loan to China was 90, but the Corporation had authority to reduce it to 88 at its own discretion in case the market was unfavorable. The operation of this agreement has been advantageous to both sides. In view of the unsettled state of affairs in China ten years ago, too many safeguards could not be thrown around any foreign loan of importance, so the Corporation in defending the interests of investors had to exact terms, which would be impossible to secure now, and China in her peculiar situation had to accept them.

The prospectus of the loan was no sooner issued than an official remonstrance was made by Russia to the effect that the appointment of the Chief Engineer and Accountant constituted "foreign control of the line," and this objection was only withdrawn after the understanding with Great Britain as to their respective spheres of railway influence. In view of subsequent developments, Russia's attitude has been amply vindicated. We find that the natural increase of traffic over the



H. E. SHENG KUNG-PAO, SHENG HSUAN HUAI,  
TITULAR VICE-PRESIDENT OF BOARD OF COMMUNICATIONS, ETC.,  
THE FORMER DIRECTOR GENERAL OF RAILWAYS, WHO SIGNED THE  
LOANS, FOR THE CANTON-HANKOW—PEKING-HANKOW—CHOU-TAI-  
PEINLO—AND SHANGHAI-NANKING RAILWAYS.

road soon placed it on a financial basis far beyond the original hopes entertained for its prosperity. The earning capacity of the line, expressed at the rate of interest returned on the capital value, rose from 4 $\frac{1}{2}$  per cent in 1903 to 7 per cent in 1904, 20 $\frac{1}{2}$  per cent in 1905, 18 $\frac{1}{2}$  per cent in 1906, 13 per cent in 1907 and 18 per cent in 1908. The surplus profits were sufficient to pay off the loan in three years or justify its conversion if untrammelled by the Agreement. From the surplus profits the new Kalgan line has been constructed and equipped at a cost of over £1,100,000, or half the value of the Loan. It is natural under these circumstances that the Chinese would chafe under the yoke which forced them to acknowledge the Chief Engineer as the dominant factor in the Road. The authority ceded to him under the Agreement was tantamount to an additional guarantee to an over guaranteed mortgage, and when the property had demonstrated its ability to over insure the amount of the Loan, and the Chief Engineer still insisted on enjoying all the prerogatives allowed him under the Agreement, the Chinese naturally resented an attitude which reflected on their capacity and integrity.

The ability of Mr. Kinder, the retired Foreign Director and Chief Engineer, is undoubted, and there is no hint or insinuation against his honesty or capacity in the Chinese side of the argument. But they do contend that despite his kindly nature and retiring manners Mr. Kinder retained all the authority his position allowed him and refused to recede from his attitude, even when it was acknowledged that the Loan was many times over guaranteed by the property. Out of def-





H. E. TANG SHAO-YI,  
GRADUATE OF COLUMBIA UNIVERSITY, NEW YORK.  
DIRECTOR-GENERAL OF THE SHANGHAI-NANKING  
RAILWAY WHILE UNDER CONSTRUCTION.

erence to Chinese feelings and opinion they contend his authority should have relaxed to a nominal supervision, permitting them fuller liberty of action in the management. As the Chinese capital interest in the road is \$21,994,428 Mex. against \$24,840,000 represented by the Loan at the end of 1908, or about equal at the present writing, they have every incentive to maintain the road at a high standard to insure increased profits.

Under the terms of the Loan Agreement Mr. Kinder dominated the situation for the last ten years or up to his retirement in April last. It is only natural that in consequence British railway principles largely prevail on the I.R.N.C., and if his policy had been approved by the Chinese Government, they would extend to every road in China to the exclusive benefit of British railway materials and consequent disadvantage to all others. To this end the Shanhikwan Works were erected and bridge construction for the I.R.N.C. and other roads in China undertaken. The amount of new bridge work



HIS EXCELLENCY TAOTAI K. S. LOW,  
MANAGING DIRECTOR OF THE TIENSIN-PUKOW RY.,  
SOUTHERN SECTION. GRADUATE OF TROY POLYTECH-  
NIC INSTITUTE. HIS UNSWERVING FIDELITY TO HIS  
COUNTRY'S INTERESTS HAS CALLED DOWN ON HIM THE  
UNJUST CRITICISMS OF FOREIGNERS.

on the I.R.N.C. would never justify the erection of such an extensive plant, so we are forced to conclude that the main objective was a monopoly of such work throughout the Empire. With engineers in charge specifying standards and following bridge principles prevailing in Great Britain, the logical end meant the monopolization of the Chinese market for British steel manufacturers. That this end is aimed at is indicated by the fact that the Works will be forced to close down for lack of orders, and attempts have already been made by the Chinese Directors of the I.R.N.C. to have other roads in China compelled to patronize them.

As to the car and locomotive works at Tongshan, the same argument holds good. British locomotive and car practice predominates and in erecting the extensive car shops the idea was to concentrate at this point the building of the cars at least, for other roads in the Empire. The standards set by the I.R.N.C. have been accepted by the Board of Communications, and only the stubbornness of provincial companies prevent



their general adoption, and with roads constructed under foreign loans of course they cannot be enforced. Tenders for materials on the I.R.N.C. under Mr. Kinder's régime were not always thrown open for general competition, despite the clause of the Additional Agreement of 1902. He established the principle that only certain first class makers could tender, against the protests of other interests. It is true that some locomotives were purchased from America, but their record on the I.R.N.C. has been used by other engineers to disparage their use on other roads in China. It goes without saying that Mr. Kinder's intentions were based on sound principles; China must sooner or later adopt a standard railway practice in cars and locomotives, and anyone who can bring this about, with fairness to both European and American manufacturers, is entitled to all due honors and rewards. But any attempt to induce China to adopt standard regulations drawn up by an engineer

ment, in that it gave the Chinese authorities greater control of the property. The Loan was for £4,500,000, issued at 90 and in the original draft bore interest at 4%. As the Belgians found the loan could not be successfully floated on this basis, certain charges were added in a supplementary agreement bringing the interest up to 4.4%, and in the final draft terms almost similar to the Peking-Newchwang Loan were secured at 5%, the currency of the Loan to be 20 years. The security was a mortgage on the property guaranteed by the Imperial Government. The Belgian Syndicate secured the right to order all the supplies for the line, subject to the approval of the Chinese Director General. The work of construction and technical control was under a Chief Engineer appointed by the Syndicate, subordinate to the Director General. The Chief Engineer could select the foreign railway staff, but appointments could only be made by the Director General, who also



HIS EXCELLENCY CHOW CHANG-LING (C. L. CHOW),  
FORMER DIRECTOR OF THE IMPERIAL RAILWAYS OF NORTH CHINA.  
EDUCATED IN AMERICA.



HIS EXCELLENCY CHUNG MUN YEW,  
MANAGING DIRECTOR OF THE SHANGHAI-NANKING RAILWAY, A  
GRADUATE OF YALE UNIVERSITY AND FORMER SECRETARY OF  
LEGATION AT WASHINGTON AND CONSUL GENERAL AT MANILA.

of any one nationality, working under the protection of a Loan Agreement, must be viewed with deep concern by competing interests. In this one point the Peking-Newchwang Loan Agreement is not only a direct menace to American and Continental participation in the future railway business in China, but limits British sales to a few approved concerns.

It cannot be urged that this end was in view when the Loan was made or that the British engineers are deliberately following this line of action, but the gradual development of such a policy follows as a natural sequence to the employment of a British Chief Engineer for 45 years on a railway so closely in touch with the Central authorities in Peking.

Following closely on the heels of the Peking-Newchwang Loan came the Peking-Hankow Agreement placed through Belgian financiers. The terms entered into the previous year were much more favorable to China than the British agree-

ment, in that it gave the Chinese authorities greater control of the property. All material exclusive of what could be secured in China was to be purchased abroad through the Syndicate, providing the latter would supply them at even quality at the lowest price, otherwise China could purchase where she liked. A commission of 5% was paid the Syndicate on all such purchases. In addition China secured the option of redeeming the entire loan at any time after ten years, the date of first amortization payment.

In the construction of this Railway, and the operation of the Agreement, there is every evidence that complete harmony existed and the road was completed to the satisfaction of both parties. The Belgian Chief Engineer drew up the plans, specified the material, and the Director General approved and authorized the payments, and only Belgian or French products were purchased. It was a clear cut, out and out business



proposition for the Belgians, for all they could secure from the loan, as the alleged political agents of France and Russia, was the market for their iron and steel. Aside from the rails purchased from the Chinese Hanyang Iron & Steel Works, their manufacturers derived the fullest returns from the undertaking. The provision of the Loan which gave the Chinese absolute control, and the privilege to redeem the property at the termination of ten years placed an effective check on any ambitious schemes to dominate the railway situation for Belgian firms.

When the time came, China exercised her rights and with a new loan redeemed the old one, bought out all the interests of the Belgians to a share in the profits of the line, replaced the Belgian officials with her own men, and is now

The next railway Loan also dealt with a Belgian Agreement for the construction of the Peinlo Line (Kaifengfu-Honnanfu). This was signed at Shanghai in 1904 and provided for a loan of £1,000,000, issued at 90, bearing 5% interest, secured on the railways and guaranteed by the Imperial Government. It is redeemable in 20 years, but after 10 years, the date of first amortization, it can be refunded or converted. As for the engagement of the Chief Engineer and foreign staff and the ordering and purchasing of materials, the same general rule as applied to the Peking-Hankow Line was adopted, and they were all furnished by French or Belgian manufacturers.

The Shanghai-Nanking Railway Loan Agreement of July 1903 for £3,250,000 was issued at 90, and bore interest



His Exc. LIANG JU-HAO

EDUCATED IN AMERICA. FORMER MANAGING DIRECTOR  
OF THE IMPERIAL RAILWAYS OF NORTH CHINA



HIS EXCELLENCY LIANG CHEN-TUNG (SIR CHEN-TUNG LIANG)

RECENTLY RESIGNED FROM POST OF DIRECTOR-GENERAL OF THE CANTON-HANKOW RAILWAY TO PROCEED WITH H. I. H. PRINCE TSAI HSUN AS FIRST SECRETARY OF THE MISSION TO STUDY NAVAL AFFAIRS. EDUCATED IN AMERICA IN THE EARLY EIGHTIES. AS FIRST SECRETARY OF THE CHINESE EMBASSY TO QUEEN VICTORIA'S JUBILEE, THE HONOR OF KNIGHTHOOD (K. C. M. G.) WAS CONFERRED ON HIM. WAS ALSO FIRST SECRETARY TO PRINCE CHIN'S MISSION TO GERMANY IN 1901, AND SUBSEQUENTLY MINISTER TO THE UNITED STATES AND PERU.

controlling the property free from any restrictions or interference.

The Cheng-Tai Railway Loan Agreement which received preliminary approval in 1898 was not formally ratified until September 1902, and is known as the Chinese 5% 1902 Loan. Its nominal value was Francs 40,000,000, issued at 90%, for 25 years, with privilege of redemption. In this agreement the Administration of the Railway rested with the Company and all materials purchased abroad were to be procured from France or Russia. The construction was turned over to the Belgian Syndicate of the Peking-Hankow Line and the same rule applies as to the origin of material. Only French or Belgian materials are in use.

at 5%, with the Railway and its revenues as first mortgage and guaranteed by the Imperial Government. The life of the Loan is 50 years, repayable at 102½ after 12½ years, and at par after 25 years. Under the provisions of this agreement the Engineer-in-Chief appointed by the British and Chinese Corporation had practical control over expenditures. The Corporation bound itself to build and equip the road as economically as possible in accordance with the best modern methods. The supervision of the road was entrusted to a Board of Commissioners of 5 members, three foreigners and 2 Chinese. One of the Chinese members was appointed by the Director General and the other in conformity with the wishes of the Provincial Viceroy. In addition to the Engineer-in-Chief, the Corpora-



tion appointed two British members. The functions of the Engineer-in-Chief were limited to the construction and operation of the line and the management of railway affairs.

The predominant influence of the British members on the Board, of which the Chief Engineer was the virtual head, naturally led to the adoption of any plans submitted by him, and the approval of any and all expenditures for material. There was only one logical outcome to such a situation.

The control of expenditure resting in the hands of the Engineer-in-Chief, it follows as a matter of course, that only favored British manufacturers were permitted to tender for supplies, and only British material was recommended and purchased. And as corollary to the above, and the desire

vergence of costs has set the Chinese thinking. They allege extravagance and unnecessary expenditure on the part of the Engineer-in-Chief. The fine passenger cars, high grade locomotives, substantial freight houses and commodious stations are held up as too costly for such a short line China. They maintain that the great masses have no luxuries in their homes, and they don't require such things on their travels. They insinuate that the excessive expenditure was due to a desire to increase the size of the Loan, and add to the commission of 5% on all purchases for supplies. The Corporation thus placed in an unpleasant light answers that while the road has cost more than any other in China due to the superior quality of the construction and material, the total would have



HIS EXCELLENCY SHIH SHAO-CHI (ALFRED SZÉ)  
GRADUATE OF CORNELL UNIVERSITY 1902. FORMER DIRECTOR OF THE PEKING-HANKOW AND IMPERIAL RAILWAYS OF N. CHINA



H. E. TSAI SHAO-CHI,  
EDUCATED IN AMERICA. FORMER DIRECTOR  
OF THE IMPERIAL RYS. OF N. CHINA

to build and equip the road according to the best modern practice, only the most approved materials found their way into the make up of the road. And accordingly the road is as it should be, thoroughly first class in every respect, representing the best in British railway practice and standard throughout. It is undoubtedly the best built and best equipped road in China, and a standing object lesson of British railway principles adapted to Chinese requirements.

But the road has cost something like \$55,000 gold per mile, exclusive of flotation charges and commissions, as against a cost of \$40,000 gold per mile on the Imperial Railways of North China, and an estimated cost of less than \$20,000 gold per mile for some roads built under purely Chinese supervision, such as the Kiangsu, Chekiang and Sunning Roads. This unusual di-

been greatly reduced had it not been for the many "combines" amongst the Chinese officials to raise local prices for land and ballast. The British side of the dispute is summed up in the following article to *The Times* from its Shanghai correspondent:

"By the terms of the contract Sheng Ta-jen received £250,000 in return for which he is bound to acquire all necessary land, and to obtain the removal of graves within the limits required by the railway. At the beginning of March, eighteen months after the arrival of the engineering staff, only 38 miles of the total length had been acquired, and this in isolated sections; but since then matters have advanced more rapidly. The construction of the first earthworks began in October, and now proceeds as the land is handed over; it is therefore evident that future progress will depend chiefly on Sheng's performance of his duties. He promised to give the company full possession of all the land as far as Soochow before April, and thence to Wusieh before June; but hitherto continuous pressure has not succeeded in securing the fulfilment of this official's promises. In the meanwhile it is interesting to observe that, so soon as the survey of any section is completed and the line definitely located, a Chinese syndicate—of which Sheng Ta-jen's son is the reputed head—purchases the land, wherever possible, from the agricultural owners and holds it against the railway company, claiming a large advance on the market value. (The price paid for agricultural land, compulsorily acquired, varies between £20 and £40 per acre.) These operations primarily



concern the Chinese Government; but, as they delay construction work and thus increase the ultimate cost of the railway, they concern also the concessionaires to whom Sheng frequently appeals for more funds to meet 'unexpected contingencies.' At the Shanghai terminus, in particular, the necessary land has been so effectively 'cornered' and is held at such high prices that the position of the station may have yet to be altered, and in any case cannot be completed before the opening to Soochow takes place. The humorous side of the matter is thrown into relief when we remember that this is a Chinese Government Railway, and that Sheng and the Chinese Commissioners on the Board of Construction are ostensibly carrying out the work with economy and despatch.

"Another source of difficulty lies in the removal of graves. This is a question which presents itself everywhere in China; but in the country between Shanghai and Wusieh it is unusually prominent, because the line runs through what might be well described as a continuous graveyard. Tombs and family burying-grounds, frequently of great size, are scattered haphazard throughout the highly cultivated fields; many have been removed during the past year, but even on the land already handed over an

"Another interesting example of Chinese official methods came to light when the construction of bridges was begun. The corporation soon discovered that a completely organized 'corner' had been formed by the Chinese to control the supply of skilled labor and of bricks. So effective was this 'combine' that considerable time elapsed before work could be done at anything like reasonable prices; and one of the consulting engineers (Mr. A. J. Barry) has therefore made arrangements for the establishment of independent brickyards and the importation of labor from Tientsin. In the meanwhile the construction of all bridges as far as Wusieh has been contracted for.

"A similar 'corner' was subsequently organized to command the supply of ballast: the native syndicate in this case has acquired control of all the existing quarries at Soochow, and even extended its operations in Ningpo. Popular report even credited the Chinese members of the Board of Commissioners with a benevolent interest in these corners. At an early stage of the local negotiations, after the signature of the final agreement, the Chinese claimed that no contracts for construction work should be made except through a native official who claimed the title of 'Director of Contracts.' The organization of 'corners' followed upon the collapse of this preposterous proposal."



**THE LATE CHANG-CHIH-TUNG**  
LATE DIRECTOR GENERAL OF THE CANTON-HANKOW RAILWAY, AND  
LEADING SPIRIT IN THE RECENT LOAN FIGHT FOR  
RECOGNITION OF CHINA'S HONOR

enormous number remain, and for these gaps have to be left in the embankments. For each grave's removal compensation has to be paid at rates varying between 10s and £1; and as this business is also transacted by Sheng's staff, it presents a continual cause of friction and delay. So-called benevolent societies have been formed at various centres, and collect subscriptions with the ostensibly pious object of removing the remains of the numerous departed Chinese who left no descendants to practise for them the rites of filial piety. The Tai-ping rebellion left many such cases in its track. These societies employ coolies to collect the bones, which are then reverently placed in a Devoo's kerosene packing-case or other equally inexpensive receptacle, and thereafter deposited on the nearest piece of waste land, the society's work being confined to claiming and getting the compensation per set of bones collected. The smallest remains will suffice to justify a claim, and unidentified ancestors are therefor in demand all along the line. It is reported, though difficult to prove that the Chinese members of the Board of Commissioners and other local mandarins have been prominently connected with the 'benevolent' societies.



**H. E. LU HAI-HUAN,**  
EX-DIRECTOR GENERAL, TIENTSIN-PUKOW RAILWAY,  
ONE OF CHINA'S MOST HONORED AND UPRIGHT OFFICIALS,  
WHOSE CAREER HAS BEEN BLASTED OWING  
TO THE HUGE PECULATIONS OF HIS SUBORDINATE  
AT THE GERMAN END OF THE LINE

Of course if this report is true, the Chinese adopted a very bad foreign custom, and deserve severe censure. We have heard of many instances where the "inside clique" in foreign countries reputed to be highly enlightened have quietly cornered land needed for government, railroad or other public purposes. It seems hardly credible that the Chinese could know of such practice abroad, and leads us to believe that the correspondent simply fixed up an old Tammany Hall legend and inserted Chinese names to give it verisimilitude.



However, if true, it opens up a subtle question. In railway building in China is the foreign loan agent to reap all the profit, and none go to the native? A loan contract, which gives the foreigner the exclusive privilege to charge a commission on purchases, ought at least recognize the right of the Chinese to a little share of profit on his end of the deal. In this particular instance, all the profit went to the foreigner, who had control of expenditures, and the Chinese were barred from anything except on the sale of lands, brick and native labour. The foreigner's commissions on purchases amount to nearly Taels 500,000 or roughly £60,000 or 2% of the amount of the loan, and the clause which gives them this commission is looked on as a continual source of income during the life of the loan.

If the Chinese forced up the price of land, as the only means of securing their "official squeeze," and forfeited the good opinion of all right thinking people, what must be said of an arrangement which precluded open competition to all British manufacturers to a share in the supply of materials. If equal opportunity, and fair play had been granted to all British manufacturers of cars and locomotives instead of an approved list, it is contended that many thousands of pounds would have been saved in the cost of the road.

As the correspondent of the *Times* aptly remarks, there is a humorous side to the matter, but we heard no loud sound of merriment from the Chinese Government who had to foot the bills. They may turn the joke on us.

And from these two sides of the question the public is left to accept which view it likes best. The construction of the road has no great engineering difficulties to overcome, and the impression left on the mind, after hearing both sides of the dispute, is that \$55,000, gold, per mile would permit of some excessive charges somewhere in the accounts. British interests stoutly maintain with a good show of reason that in complying with the stipulations of the Agreement they have given China a thoroughly first class road in every respect, built and equipped according to the most approved modern railway practice, with stations, road bed and rolling stock which will not require any repairs or alterations for a number of years, and naturally the cost is high, and China will in time learn to appreciate the expenditure.

Chinese opinion holds steadily to the point that under the existing impoverished condition of the Empire, and the political tendency of many railway loans forced on her in the last decade, such a great expenditure was unwarranted, and her purpose would have been served by a road costing half the amount.

But the one feature which the controversy has brought strongly into the lime light is the dangerous policy to China, of entrusting the control and expenditure of loan funds entirely to foreign supervision and control. Had the complexion of the Board of Commissioners been reversed, and the majority Chinese instead of British, the former maintain that the road would have been built for half the cost, and some strength is given their argument from the costs of other roads built solely under native control. Further strength is given their side of the argument from the prices quoted for rolling stock in the Report of the Engineer-in-Chief and a comparison with other prices at which similar goods have been laid down in China for other roads. Although the Loan Agreement calls for the flotation of £3,250,000 in bonds, only £2,900,000 have been issued and the Chinese Government prefers to furnish from the Treasury any



### The Builder of the Kalgan Railway the most difficult engineering task in China

HIS EXCELLENCY TAOTAI CHAN TIEN-YU, C. E., M. I. C. E., ETC.  
GRADUATE OF YALE UNIVERSITY, MORE FAMILIARLY KNOWN UNDER THE CHINESE  
RENDERING OF HIS NICKNAME "JIMMY," GIVEN HIM AT YALE BY HIS  
FELLOW STUDENTS IN 1883, AND WHICH HE CONTINUES TO USE  
UNDER THE STYLE OF JEME TIEN-YU



necessary balance of funds for the completion of the road, rather than sanction the issue of the £350,000 balance through the Corporation.

The next loan of importance is the Canton-Kowloon, 5%, 1907, gold loan for £1,500,000, issued at 94. The duration of the Loan is 30 years, redeemable at 102½ after 12½ years, or at par after 25 years. The same general rules for the supply of material are followed as in the Shanghai-Nanking agreement, except that instead of the Corporation receiving 5% commission on all purchases this was commuted to a lump sum of £35,000 in full payment of all services rendered in the construction and equipment of the road. The Chinese profited from experience on the Shanghai-Nanking construction, where the Foreign Engineer had full control over expenditures, and in the present agreement they secured for the Chinese Director General participation in the supervision of the funds. Under the agreement, the Head Office was directed by a Chinese Managing Director (appointed by the Viceroy at Canton) with whom are associated a British Chief Engineer and a British Chief Accountant. The British employees were proposed and certified as competent for the posts by the Corporation, and they could only be dismissed by mutual agreement with the Viceroy. The accounts and expenditures were to be certified by the Accountant before payment by the Managing Director. Here although China secured an advantage in handling the expenditures, the British succeeded in placing their accountant as a check on any irregularities. This Agree-

by the Imperial Government. China here made another step forward towards recognition of her rights in the control of funds and construction. The construction and control of the railway is entirely vested in the Imperial Chinese Government, in addition to the power to appoint qualified German and British Chief Engineers, acceptable to the Syndicate. These in turn were under the orders of the Chinese Managing Director. In the employment or dismissal of the technical employees of the line, the Director and Chief Engineer have to concur or submit the difference of opinion to the Head Director General for decision. China also secured the privilege of appointing a European Chief Engineer to administer the entire line after construction, without reference to the Syndicate.

The absolute control of the funds rested in the hands of the Chinese Director General and through him delegated to the Managing Directors of the two sections.

There was no provision for the services of a Foreign Accountant to certify payments as in the case of the other Loans. In fact the terms were the most favorable ever conceded to China, establishing the principle that she could be trusted to spend a foreign loan honestly. British opinion was loud in asserting that the terms were too liberal, as with no check on the accounts they failed to offer sufficient guarantee for the investor. Provision was made in the Agreement, however, that an Auditor paid by the Syndicate could inspect the accounts at stated intervals, but beyond this he had no power to interfere. The Germans, on the other hand, were as loud in



(From left to right.) H. E. SHENG KUNG PAO, Vice-President Board of Communications; H. E. LI CHING FANG, Director of the Hu-Kuang Ry.; H. E. TSEN CHIN HSUAN, Ex-President of the Board of Communications; H. E. LU-HAI-HUAN, Ex-Director-General Tientsin-Pukow Ry.

ement was considered by British opinion as the very best yet negotiated, and held up as a pattern for all future loans. Mr. Kent in his book on "Railway Enterprise in China," in summing up the situation, laid stress on the soundness of such terms. But human judgment is liable to err, and the result of their working out has proved a boomerang to the advocates of foreign financial control. To the intense mortification of British interests, the much abused Chinese propensity for "squeeze" has been equalled by their own chosen and accredited custodian of the national honor. Late papers from Hongkong bring the story of the trial and conviction of the British Chief Accountant of the Canton Kowloon Railway on the charge of embezzlement of funds amounting to over \$20,000.

We now come to the Imperial Chinese Government Five Per Cent Tientsin-Pukow Railway Loan, issued on the 13th day of January, 1908, through the Deutsche-Asiatische Bank (German) one half, and the Chinese Central Railways, Ltd., (British) one half, for the construction of the trunk line from Tientsin to the Yangtze at Pukow. The term of the loan is 30 years, repayable after 10 years at 102½, and at par after 20 years. The price to the Chinese Government for the first flotation of £3,000,000 was 93, and the second the actual rate of issue to the public, less 5½ points commission to the Syndicate. The loan is secured on the likin and internal revenues of Chihli, Shantung, Nanking and Kiangsu, and guaranteed

their praise of the terms, taking unto themselves all the credit of conceding the square deal to China for the first time in the history of foreign railway loans. And so the negotiations terminated and went into effect. China could now show to the world that her officials were fully competent and trustworthy, and with a check on the possible extravagance of the Foreign Chief Engineer in ordering materials, the Managing Directors could keep down the cost, and prevent favoritism.

But here again the unexpected happened. The Chinese Managing Director of the Northern Section was married to a German lady, and had strong Teutonic tendencies and connections. Complete harmony existed from the outset between him and the German Chief Engineer, and the work of construction was pushed ahead rapidly.

Although solely in charge of the funds, and responsible for their proper accounting and expenditure, relations between him and the Engineer were such that he permitted the latter equal participation in the control of the Chief Accountant and his assistants. The contract of engagement signed by these employees recognized the Chief Engineer as equal in authority to the Managing Director, despite the stipulation of the loan, placing sole responsibility for the funds and their accounting in the hands of the latter. So here at the outset the superior official surrendered a part of his prerogatives to a subordinate without any of the responsibility. Affairs ran very smoothly and order after order for materials was placed in Germany.



Goods of other countries received little favor from the northern authorities. It is openly stated that only certain firms had any chances for the business of the road, and it is alleged that tenders for some of the material were publicly invited in Tientsin, after the goods had been ordered from Berlin and on the way to the East. The happy concordance between the Chinese Director and his German subordinate was held up as a model for the Southern Section to follow, where opposite conditions prevailed. But the blow came and shattered this ideal, "and all the King's horses and all the King's men cannot put the pieces together again."

Following the many charges of graft and corruption against the Chinese Managing Director—which are too numerous to specify—investigation disclosed the fact that Taotai Li had annexed unto himself and his confederates the insignificant sum of Taels, 3,500,000, or roughly speaking \$2,400,000 gold, or one-fifth the entire portion of the German loan. China lost no time in dealing with the matter. Punishment was meted out to the impeached official, and all those implicated with him in the frauds. In his fall, he dragged down the Director General Lu Hai-huan although it is conceded that he has no share in the misdeed of his subordinates. Chinese law could not reach his alleged foreign accomplices, so the Imperial Government had to rest content in cleaning out and chastising its own wrongdoers. German interests have stoutly protested the innocence of the Chief Engineer and other German officials, and maintain they are entirely free from any suggestion of collusion, and in fact no formal charge has been presented against them. But the Chinese have been thinking, and wonder how the Chief Engineer, after arrogating to himself equal control over the accounts, failed to discover these enormous peculations, and to bring charges against his superior through the Bank, or why the German auditor overlooked the unmistakable discrepancies in the accounts. While the Chinese are willing to accept the stigma of criminal carelessness, they cannot free their minds from the idea that although the German officials may be scrupulously upright and incapable of acquiring ill gotten gains, they are open to censure, inasmuch as the Chief Engineer having equal supervision of the accounts must have exhibited the same culpable negligence in failing to detect the frauds. As it can be fully substantiated that the German Chief Engineer, contrary to the provisions of the Loan Agreement, enjoyed equal control over the Accounting Department, public opinion will side with the Chinese contention. The situation is one which calls for something more definite than a mere protestation of innocence from German interests, as under these conditions their national honor is as much at stake as the Chinese, who have so far meekly accepted the full burden of the disgrace. It is safe to say that cordial and harmonious relations between a Chinese managing director and a foreign engineer, which throws all the purchases into the hands of favored manufacturers of any one nation, will in the future receive more careful scrutiny at the outset by the Imperial authorities.

While this situation existed at the German end, affairs on the British section progressed along opposite lines. Here the Chinese Managing Director is a civil and railway engineer graduated from an American College in 1883. His knowledge of railway matters is almost as good as that of the British Chief Engineer under his orders. Instead of harmony, discord reigned in the camp. The British Engineer, despite the plain intention of the Loan Agreement and guided by the precedent on the German section, insisted that the Chief Accountant must recognize him as equal in authority with the Managing Director. And against the positive objections of the latter, to any interference in his domain, the Engineer created the issue, which was only settled by the authorities in Peking ruling against his pretension.

Aside from this friction, matters have progressed favorably. Work on the road has been retarded and China will have to pay a little more interest, but on the other hand she is securing such low prices for materials that the saving will greatly outweigh any small increase in interest due to a few months' delay. While the Chief Engineer invariably advocates the purchase of British materials, many tenders at lower prices have been awarded by the Managing Director to American and

Continental firms, and Chinese industries have been favored whenever possible. The working out of the "Pukow terms" on the Southern Section has so far vindicated China's contention that her officials are fully competent and trustworthy to handle loan funds to the best advantage of the investor and her own interests. Never before in China have bridges and rolling stock been delivered so cheaply. The same general type of goods waggons sold to the Shanghai-Nanking Railway have been purchased by the Tientsin-Pukow Director for about half the price.

And now we come to the Shanghai-Hangchow-Ningpo 5% Gold Loan of 1907 for £1,500,000, issued through the British and Chinese Corporation. This is fully dealt with under the article on that road. The moral of this story is that some Chinese are unwilling to accept a foreign loan at any price, and stubbornly resist the efforts of the Central Government to force them into line. Here the Chinese have been willing to indemnify or present the foreign corporation with the amount of their commissions for purchasing supplies rather than permit them to interfere in their affairs. The result is that under their own supervision the Chekiang and Kiangsu Railways have been constructed and equipped according to their own reports at a cost of less than \$20,000 gold per mile. The foreigner cries "graft," as the reason for the desire to handle their own money, but the low cost of the roads, practically prohibit any large amount of squeeze. Between \$20,000 on the Kiangsu and Chekiang Railways and \$40,000 on the I.R.N.C. or \$55,000 on the Shanghai-Nanking Railway is a wide difference, and if the Directors have received "official commissions" they are not above a practice prevailing in some other countries. But the critics say the money was wasted, the bridges are unsafe, the road bed is sand, the sleepers are punk, the cars are miserable and the engines will only last a few years. The proof of the pudding is in the eating. The roads are there, trains are running, so far there have been no accidents, and the Chinese are congratulating themselves on outwitting the foreigner. Some of their rolling stock may be had, but they got just what they ordered and paid for. On the other hand some of the cars are standard German, American and British make. The tracks may need ballasting and new sleepers required in due time. Profits are rolling in and they can afford to spend some in correcting errors. To those who unfavorably compare the trains in these roads with the Shanghai-Nanking, the Chinese answer, "it is good enough for us," and we have a margin of \$35,000 gold per mile between us and the other road.

This brings to the proposed Hankow-Canton and Hankow-Szechuen Railway Loans, now awaiting signature at Peking. These roads are to be constructed under a joint loan from Great Britain, France, Germany and America, and Pukow terms will prevail.

In accordance with her promise China extended the first chance to supply this loan to a British Syndicate, but H. E. Chang Chih-tung, the Director-General of the Line, having the negotiations in charge, insisted that "PUKOW" terms should be stipulated in the Agreement. To this the agent of the Corporation refused to accede, and held out for "Kowloon" terms, with their reflection on Chinese honesty. The negotiations were terminated abruptly by H. E. Chang Chih-tung refusing to treat further with the Syndicate, or its representative. He then turned to the German Bankers who were only too willing to accept these terms. So the deal which let Germany into the Yangtze valley was negotiated and signed. This great blow to British prestige in China is therefore the direct outcome of a loan agreement in which her representative refused to cede her a certificate of character and admit the honesty of her officials, and on this rock the British and Chinese Corporation finally came to grief, and destroyed its future activity in China. During the subsequent Loan negotiations in Peking, the Chinese flatly refused to deal with their representative; British interests in China had to be taken over by the Hongkong and Shanghai Bank, and Mr. J. O. P. Bland, after a life time of activity in the East, was compelled to retire from a field in which his usefulness was ended.

In the final drafting of the Agreement, which is still unsigned, the construction of a section of the Hankow-Szechuan Line was included. Great Britain, France, Germany and



America will participate equally in the £6,000,000 issue, and materials will be purchased in the cheapest market. The issue price is to be 95, and the terms in general are the most liberal ever conceded to China, and mark the final step to a full recognition of her rights in supervision of foreign loans.

From a careful study of nearly all Chinese Railway loans, it is apparent that foreign financial syndicates refuse to accept the theory that China can be trusted to honestly administer the proceeds of a loan, and therefore trusted agents must be selected to prevent her officials squandering the funds. It is seen that in some instances this theory has been amply vindicated and on others the reverse has obtained. On the I.R.N.C. under British technical and accounting supervision, the property has rapidly increased in value, though this was due to natural trade conditions rather than to any unusual activity on the part of the foreign chiefs of departments. Even with these checks on the accounts it has been impossible to completely prevent frauds, as several years ago it is asserted that corruption existed on a huge scale. And while the provisions of the loan have operated to the entire satisfaction of the foreign bondholders, they have at the same time constituted a direct menace to the legitimate aspirations of manufacturers other than favored British firms to an equal share in the Chinese railway market. British writers point to the administration and operation of the I.R.N.C. as the model for all other roads in China. Were it not for the danger to American and Continental railway principles involved and absence of fair play to all British manufacturers, this could be conceded, and as far as the operation of the road as a public carrier is concerned the system can be approved, but when the administration of such a road bound under the clause of a Loan Agreement to have a British Chief Engineer and assistants for 45 years enters into the manufacture of cars and bridges with British Standards predominating, for the avowed purpose of compelling their use on all other roads in the Empire, then the point must be stubbornly contested, as infringing on the doctrine of equal rights and the Open Door. No one can gainsay the right of the Chinese Government to impose such standards as it considers applicable to the requirements of the country, but in such a case, they should be drawn up by a body of broadminded men representing British, Continental and American practice, and not by a group of engineers of any one nation.

It has been proved that the theory underlying a loan agreement reflecting on the integrity of the Chinese officials, by providing for foreign supervision of accounts, does not always work out as expected, as instanced by the defalcation of the Accountant of the Canton-Kowloon Line. On the other hand the contention is strengthened by the enormous speculations of the Managing Director of the German section of the Tientsin-Pukow Line, carried on successfully under the eyes of the German Chief Engineer, who had equal participation in the control of the Accountant.

Absolute control of the construction funds in the hands of foreigners has not been acceptable to Chinese ideas of economy, as evidenced in the Shanghai-Nanking Railway dispute. Extravagance is charged on one side and jobbery on the other. It is a fact that ballast for the road had to be procured at high figures, owing to the combines amongst Chinese officials and gentry controlling the properties, and it is also fully substantiated that the prices paid for rolling stock was greatly in excess of what they should have been. This agreement worked out to the full satisfaction of the foreigner, but the experience will never be repeated by China.

It is also proven that under Chinese supervision of expenditures as instanced on the southern section of the Tientsin-Pukow Railways, honesty and strict economy have prevailed to the great advantage and profit of the Chinese Government, or rather not to the exclusive benefit of products emanating from the country furnishing the loan. It is also brought clearly into the limelight, that when untrammelled by loan agreements, or interference of foreign engineers, accountants and technical staff, and China permitted full liberty to supervise and construct her roads under native engineers and directors, the result is a revelation in economy which no foreign built road has ever attained. In the building of such roads as the

Peking-Kalgan, Kiangsu, Chekiang, Pinghsiang and Sunning under purely native supervision and control, China has demonstrated to the world that she is fully competent to develop her transportation facilities at figures defying foreign competition. At a cost of \$20,000 to \$30,000 gold per mile, there is little scope for dishonesty. The roads may not be up to accepted foreign standards, but there are many new roads throughout the world of which the same may be said, and if China is satisfied and willing to construct a cheap road at first, and improve it as receipts increase, she will only be following a precedent set by successful pioneer railway builders in all other countries.

It is evident that every loan agreement carries with it a preferential clause for the purchase of materials manufactured in the country supplying the loan, and for a 5% commission to the syndicate acting as purchasing agent. Where the foreigner has full control of expenditures and where harmonious relations exist between the Chinese Director and the foreign Chief Engineer, it follows that competition will be restricted and favored firms patronized, to the disadvantage of other manufacturers of the same nationality, not to mention the complete freezing out of any other foreign makers.

It may be deduced from the above that the only opportunity manufacturers of all nations have of competing on equal terms and conditions, is where China has absolute control of expenditures, as on the Tientsin-Pukow or Peking-Kalgan Line, or where the roads are built by private capital. All concession or loan roads are so many direct bids for a monopoly of trade to favored firms of the nation supplying the funds.

At present British, German, American and Belgian materials predominate on roads constructed under their loans. Their engineers advise purchases on the principle that the worst maker of their own country is better than the best in any other.

A rough idea of comparative costs for railways in China, built under foreign loan agreements is here given

#### RAILWAYS BUILT UNDER THE RESTRICTIONS OF LOAN AGREEMENTS.

RAILWAY.	MILES.	LOAN.	COST PER MILE U.S.C.	
Imp. Rys. of N. China. ....	600	£2,300,000		
Imp. Rys. of N. China (Ch. Gov't shares).....	600	2,275,000		
Total.....		£4,575,000	£ 7,625	\$41,800
Peking-Hankow Ry.....	760	£4,500,000		
Ch. Gov't assets.....	....	1,790,000		
Total.....		£6,290,000	£ 8,276	\$41,380
Shanghai Nanking Ry.....	203	£2,900,000		
Ch. Gov't advances.....	....	221,373		
Total.....		£3,121,373	£15,376	\$76,880
(1) Canton Hankow.....	30	*£ 500,000	£16,666	\$83,336
(Samsui Branch) Total amount of loan.....	30	1,100,000	36,666	183,333 actual cost.
(2) Tao-Ching Ry.....	*90	700,000	6,666	33,333
Cheng-tai Ry. (meter gauge)	160	1,600,000	10,000	50,000
Peinlo Ry.....	140	1,000,000	7,142	35,710
Canton - Kowloon (under construction).....	90	1,500,000	16,666	83,333
Tientsin-Pukow.....	600	5,000,000	8,666	43,333
	2683	24,385,373	9,000	45,000

(1) \* This figure is arrived at as follows: In the cancellation of the concession of the \$6,500,000 paid to the American China Development Co. \$3,000,000 represented the amount expended on the 30 miles of finished road, and 50 miles of earthwork. Allowing \$10,000 per mile for this latter item, or \$500,000, it leaves \$2,500,000 as the cost of the 30 miles. As in this have been included a large percentage of preliminary and other expenses which would have been proportioned to the entire line when completed, the amount arrived at of £16,666 per mile is undoubtedly much higher than it would have been if the road had been completed under the original concession.

(2) \*This is not really a loan-built road, but comes under the following heading. The loan was contracted after its completion by the Peking Syndicate.

#### RAILWAYS BUILT UNDER FOREIGN MANAGEMENT AND USING THEIR OWN FUNDS

RAILWAY.	MILES.	COST.	COST PER MILE U.S.C.	
Ch. Eastern Ry., Russian...	1600	\$150,000,000 estimated.		\$90,000
Shantung Rd., German.....	245	£2,664,600	£9,200	46,000
Yunnan Ry., (meter), Fr...	535	\$32,216,000		60,000
Peking Syndicate, British...	90	£614,600	£6,828	34,140
(1) Kowloon-Canton, British.	22	*\$13,000,000	\$600,000	250,000
			Mex.	Mex.
South Manchuria System, (Jap).....	714	Estimated over \$100,000,000 capital.		140,000

(1) \* Of this estimate over \$3,000,000 went on the Beacon Hill Tunnel. The road has between 8,000-9,000 ft. of tunnels and large reclamation. The Kaigan Road had over 5,400 ft. of tunnels, and some heavy cuts and fills, and was completed for \$40,000 per mile. The comparison is merely made to show the great divergence of costs between the two most difficult roads in China.



## RAILWAYS BUILT WITH CHINESE CAPITAL WITHOUT FOREIGN RESTRICTION.

				U. S. Cy.
Pinghsiang.....	70	Tls. 3,600,000 exp.	Tls. 51,428	\$32,000
Kiangsu.....	36	\$3,000,000 cap.	\$83,333	34,000
Chekiang.....	78	5,000,000 cap.	64,100	26,000
Swatow-Chacchow.....	24	2,000,000 cap.	83,333	34,000
Peking-Kalgan.....	122	Tls. 8,000,000 exp.	Tls. 65,570	41,000
Sunning Ky.....				
Tsinsin Light Ry.....	18	250,000 exp.	13,888	8,676
Nanking City Ry.....	8	300,000 exp.	37,500	24,187

The actual amount expended is not obtainable though native reports are to the effect that all these roads have been built for less than \$20,100 per mile and a balance was left in the Treasury.

The average cost of the Loan Built Roads will be considerably reduced, by deducting the large sum for the repurchase of the Canton-Hankow Concession from America, for which only 30 miles of road is allowed, but on the other hand there was some 50 miles of finished earthwork and grading included in this, as well as indemnity for loss of profits. To this should be added the financial losses on floating the loans, averaging 10 per cent, which would bring the construction cost of the roads down to a lower figure and make the general average about £8,000 per mile against say £6,000 per mile under Chinese direction. Complete and accurate data is lacking to make an exact table or estimate, and the figures given here vary considerably with actual expenditures; for instance, the Chekiang, Kiangsu and Swatow railway officials claim to have built their lines for under £4,000 per mile, but in default of actual figures, we have had to take their paid up capital as a guide.

It appears that the most costly loan built railway is the Shanghai-Nanking Road at an average cost of £15,000 per mile. (Revised figures give a final total for construction of £10,600.) The most economical of the foreign built roads is the Peinlo Line and then the Peking-Hankow Line which included the most important engineering feat in China—the bridging of the Yellow River. Between the two roads there is an actual difference of say £7,000 in favor of the Belgians but there is no comparison in the quality of the work. The American built Samshui branch of the Canton-Hankow line of 30 miles was the most costly to China, as the price includes the amount of the Loan for the purchase of the concession from the America-China Development Co. The actual cost of construction, however, was large, as alleged extravagance prevailed in the ordering of materials, and in prices paid. Naturally everything was purchased from America. The cost of this line to China, if carried to a finish at the pace set in the early days of construction, would probably have equalled the Shanghai-Nanking road, so Americans can not hope to stand on a pedestal and lay claim to any superior virtues. The point which the above table makes clear is that the cost of her 2,680 miles of foreign constructed roads including cost of loan flotations averages over £9,000 or \$45,000.00 gold per mile.

The most difficult engineering railway proposition in China is undoubtedly the 122 mile road from Peking to Kalgan, where over a mile of tunnels have been pierced, and much difficult mountain bridge work and rock cuttings negotiated. The engines for the mountain section are the heaviest and most powerful in China. Yet with these high initial costs and charges the road has been completed for about Taels 8,000,000, or \$41,000 per mile, or about the same as the Peking-Hankow or I.R.N.C. The mountainous country through which the Ching-Tai railway passes is the nearest approach to conditions on the Kalgan Road. Yet we find that the Belgian engineers laboring under less difficult conditions, constructing a meter instead of a standard gauge road, expended £10,000 or \$9,000 more than the standard gauge Kalgan road. It cannot be urged that the rolling stock on the Kalgan road is inferior, or the roadbed is poor. The cars have been largely supplied from the Tongshan Shops and the locomotives are Mallet type from the North British Locomotive Co., and Shay Geared engines from the Lima Locomotive Co. in addition to engines loaned from the I.R.N.C. The roadbed is rock, and well ballasted. And away below the Kalgan expenditures are the costs per mile of the Chinese built and much criticized Kiangsu, Chekiang, Sunning and Swatow lines, averaging

about £6,000 or \$30,000 gold per mile, but according to their own version less than \$20,000 per mile.

The German-built Shantung line, 245 miles in length, cost, including interest on capital, £2,644,600 or about £9,200 (\$46,000 gold) per mile. There were no steep grades or engineering problems to overcome, and in a general way the character of the country traversed is similar to portions of the Shanghai-Nanking Road.

These figures speak for themselves. They tell the story that China is forced to expend much more for her foreign built roads under the restricting terms of Loan Agreements than she would if left untrammelled in the supervision and control of expenditures. And they tell us that even after a capital expenditure of £24,000,000 (\$120,000,000, gold), at the best, China has only a variegated assortment of railway cars and locomotives from every manufacturing country in the world, for some of which she has paid exaggerated prices, and many are entirely unsuited to the requirements of the traffic and must soon find their way to the scrap pile. And when the various systems are completed and joined together, there will be such a gathering together of ill-assorted and miscellaneous types of rolling stock, that interchange of cars and through freight or passenger service will be impossible, and in the end China will find herself compelled to purchase new material according to some definite standard, and relegate the old collection to purely local service on the various lines.

China is a poor man's country. All expensive and luxurious railway cars and other high grade material must be paid for by taxing the impoverished masses. China is heavily in debt and struggling hard to meet her foreign obligations and develop her transportation facilities while preserving her sovereign rights intact. Chinese officialdom may be corrupt, but it is not alone in this respect. There is not a so-called civilized nation in the world that has escaped similar charges in recent years, and for every instance of corruption in China, a counterpart can be found in other countries. The only difference is that "squeeze" is considered a legitimate perquisite in China and openly practiced by all classes. Like morality in general, it is a question of geography. In Europe and America, "squeeze," graft, corruption, malfeasance, and other similar methods of acquiring wealth, is frowned down and punished, but it is practiced just the same. China has proven to the world in her railway building that her official ideas of "squeeze" are moderate, and with all these perquisites added in, she can build roads to her own satisfaction, for nearly one-half the cost charged by foreigners.

China needs many miles of new railway which must be built for commercial and state reasons. China must borrow this money abroad as her people refuse to take up loans bearing 5% when they can make greater returns in other ways. China has demonstrated that her officials average up as honest and capable as foreigners, and all so-called checks on her control of loan funds are superfluous and an insult to her pride and standing as a nation. The security on the property, guaranteed by the Imperial Chinese Government or provincial revenues should fully insure the investor, as it does in any other country of the world. Why then should China be compelled by foreign financiers supported by their Governments to continue a system which makes her spend twice as much for her railways, and retards her progress by increasing her debts?

The major items of railway costs are lands and general labor charges, earthwork, crossings and fences, culverts, stations, administration expenses, etc., and rails, rolling stock and materials are secondary. Why perpetuate a system humiliating to a nation's pride, and doubling the entire cost of a railway for the sake of the profits on materials? By conceding to China the standing enjoyed by any little second or third rate power in other parts of the world, and accepting the Imperial Guarantee of the interest and principal, and permitting her a free hand in the construction of the roads and purchase of materials in the cheapest market, China would be able to build twice as many roads than she can under present loan conditions.

It is axiomatic that if the average cost of roads built under the strictures of foreign loan agreements, is \$45,000



gold per mile, of which sum at least two-thirds are for labor, land, and supplies purchased in the country and only one-third goes abroad for materials, and serviceable railways can be constructed and equipped for \$20,000 to \$30,000 gold per mile when built without foreign interference, China could more than double her railway building, if unmolested in the administration of her affairs. The banking corporations would lose the 5% commissions on purchasing materials and a few high salaried employees would be eliminated. The same amount of money would be expended in the country, but the orders to foreign manufacturers for cars, locomotives and railway supplies would be doubled. What the banker, purchasing agent, and staff employees would lose would be repaid to the foreign manufacturer ten times over and in the end bring just as much profit to the banks, as though they held out for the continuance of a system in which they are at present the greatest beneficiaries.

China's credit is good. Her finances need reorganizing and it will come in time. Even under foreign financial control of all revenues her credit would be strengthened. Despite pessimistic reports of China's unstable currency and financial chaos, her bonds are eagerly accepted by the investing public at par or at a premium. This denotes a confidence in the Imperial Government guarantee, equal to that extended to other first class powers. Sooner or later reflections on her integrity through foreign interference in the expenditure of loan funds must cease. The sooner the better. If international protestations of friendship to China are sincere, and there exists a genuine desire to maintain the Open Door and further foreign trade relations, every country should subscribe to the doctrine of permitting China exclusive control of her Loan Funds for Railway purposes.

The benefits accruing to all interests are self evident, and only political objections can be raised against it. It is time China is accorded FAIR PLAY.

## MEMORIAL OF H. E. TSEN CHUN-HSUAN ON RAILWAY SYSTEMS FOR THE EMPIRE

His Excellency Tsen-Chun-hsuan is a son of the late Viceroy Tsen Yu-ying and one of China's most energetic and progressive officials. He enjoys the reputation of being one of the most honest and efficient provincial rulers of the last decade. His official career began in 1892 as Sub-director of the Court of Imperial Entertainments and Director of the Imperial Stud in 1893. Appointed to in 1898 as Treasurer of Kuangtung, he rose rapidly to the Governorship of Shensi in 1900 and of Shansi in March, 1901. He was honored with the Yellow Riding Jacket in June, 1902, and transferred as Governor of Kuangtung, where he put down a rebellion that threatened to assume serious proportions. From here he was made Acting Viceroy of Szechuan in September 1903, and transferred to a similar post at Canton in Nov., 1903. He was later appointed Viceroy of the Yun Kwei which he did not accept nor the subsequent honor of the appointment of Viceroy of Szechuan. For a short time in May, 1907, he held the post of President of the Board of Communications, but was immediately ordered to the Viceroyalty of the Liang Kwong. His resignation was submitted in August, 1907, and retirement into private life has taken an official from the councils of the Empire who can ill be spared. His memorial on railways is one of the best submitted, and shows a knowledge of the wants of his country far in advance of what is commonly conceded to Chinese officials by foreign critics.

Tsen Chun-hsuan has memorialized the Throne suggesting the advisability of having China's railways under proper unified control with a proper system. The Board of Communications, after having perused the memorial, by Imperial order sent in its views to the Throne. The views are divided into three sections. One.—Centre of all the railway systems in China. Two.—Four Trunk Lines. Three.—Branch lines.

I.—Centre of the railway systems in China.—It is stated that since the Tientsin Shanhaikuan Railway, the Railway carrying the mining products of Kaiping Coal Mines and Peking Hankow line are the only lines of importance at present and that Hankow should be made the centre of all the railway systems in China. Such is the majority of opinions expressed by people who talk about the railway administration of China. There are others who maintain that Hsiangfu is the best place for such a centre. From political geography these views are not to be adopted. The place which is the capital of the sovereign of the state should be the centre of the systems. In ancient times the centre of traffic was always at the centre where tribute was sent from the east, west and south and Peking should undoubtedly in any case be the centre of the railway systems of China.

II.—Four Trunk Lines.—What we call four trunk lines are—

1.—Southern.—When the Peking-Hankow Railway connects with the proposed line between Hankow and Canton, when it is completed, it will be made the Southern Trunk line by connecting Wuchang and Hankow by ferry boat.

2.—Northern.—The line to the North is one between Peking and Kalgan and regarding the proposed Mongolian Railway made by Prince Su the Board has already mentioned that the Peking-Kalgan line should be extended to Kulun (Urga) and then to Kiachta and this line will become the northern trunk line.

3.—Eastern.—The line to the East between Tientsin to Hsinmintung together with the line between Hsinmintung and Mukden which has been restored from Japan. Regarding the proposed line of the Heilungkiang province made by Cheng Teh-chuan, the governor of that province, the Board of Communications has stated that the line should be extended to Aigun via Chiaoan, Tsitsihar. When this line is completed this may be made the Eastern Trunk line.

4.—Western.—The line between Chengting and Tayuen will be joined with the Tungpu Railway and then it will further be extended to the west with the line between Tungkuan and Lanchow as proposed by the ex-Governor of Shensi Tsao Hung-hsun and thence to Ili. When this is completed this may be made the Western Trunk line.

III.—Branch lines.—The branch lines of the Southern Trunk line.

1. Peking to Chengchow and thence from Kaifengfu, Honan, to Anhwei.

2. From Hsinyangchow to Kiangsu via Kiangpu.

3. From Hankow to Hsianfu.

4. From Wuchang to Kiangsi.

5. From Hunan to Kueichow.

6. From Canton there will be four branch lines.

a. Canton-Kowloon.

b. Canton-Macao.

c. Huichow-Chaochowfu-Amoy.

d. Wuchow-Kueilin.

All the lines in Honan, Anhwei, Kiangsu, Chekiang, Kiangsi, Fukien, Hupeh, Hunan, Shantung, Kueichow, Kuangsi and Kuangtung will be included in these branch lines.

2. Branch lines for the Northern Trunk lines.

When the line reaches Kalgan from Peking, as Cheng Hsun, the Lieutenant Military Governor of Chahar, has pointed out, there should be two branch lines, namely one to Jehol towards the east to connect Kalgan with that place and another to Suiyuan (Kukukoti) towards the West to connect the same with Kalgan and when the line reaches Kulun or Urga it will again be divided into two branches namely to Outer and Inner Mongolia. All the lines in Mongolia and Jehol will be included in the branch lines of the Northern Trunk line.

3. Branch lines for the Eastern Trunk Line. At Tientsin.—Tientsin Chinkiang Railway via Kiaochow and Tsinanfu. At Kaopangtse—a line between Yingkow and Port Arthur.

At Moukden the line runs towards the east to join the Russian Manchurian Railway. The lines in Shantung, Moukden, Kirin and Heilungkiang are to be included under this trunk line.

4. Branch lines for the Western Trunk line.

At Taiyuan a line to Tating to connect with the Kalgan Suiyuan line. At Ping yang a line to Tsechow to connect with the Tsechow Taokao line. At Tungkuan a line to Loyang to connect with the Loyang Honan Railway. At Hsian a line to the North West via Pinglin to Ninghsia, another to the South West via Hanchung to Chengtu which will join the Szechuan Hankow Railway on the east and the Yunnan Szechuan Railway on the South and thence to the Yunnan-Annam and the Yunnan-Burma lines. On the West at Lanchow lines to Tsing-kai (Kokonor) and Thibet will be built as branch lines. The lines in Shansi, Shensi, Kansu, Hsinchiang, Szechuan, Yunnan, Tsinghai and Thibet will be included under this Trunk line.

The order of building these lines should be arranged by considering both military and commercial convenience. On the northwest it is necessary to connect with the borders for the benefit of military purposes and also to connect with the sea coast on the south east for the convenience of commercial purposes. If provincial governments should be established for Mongolia and Thibet it will become very important to build lines to Urga and Thibet urgently and leave Tsinghai and Jehol as secondary. For the purpose of trade development on land and sea the Hankow-Canton line is the most important to be speedily completed and the Szechuan-Hankow and Yunnan-Szechuan will be placed as secondary. Recently the railway affairs in Kiangsu, Anhwei, Kiangsi and Fukien are mostly dealt with by the local natives by raising funds themselves. In Yunan, Kueichow, Shansi and Shensi Viceroy and Governors are earnestly planning railway affairs but owing to the lack of funds they are not much facilitated. It is necessary to build railways for trade with the profit of which military lines should be built. In the north east it is easy to raise funds from the natives but in the north west it is necessary to raise foreign loans. The Board of Communications is now collecting the plans of railways from all the provinces and compiling one complete map showing all the complicated lines in one. When the affairs of the Board will be in proper working order deputies with engineers will be appointed to complete this map with a record of the circumstances and then the order of building will be properly decided. When such plans and maps are completed they will be duly sent to provinces to enable them to report on the progress.



# THE FAR EASTERN REVIEW

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# THE FAKUMEN RAILWAY

Probably no railway in China has received so much publicity as the projected extension of the Imperial Railways of North China, northwards to Fakumen. This matter has been presented at various times by the FAR EASTERN REVIEW, and the article published in the May, 1909, issue, fully explained the situation. In the light of subsequent events and information the facts therein presented have been fully substantiated, and upheld by other impartial writers. The following extracts from this article are given here:

"The Treaty of Portsmouth bound the signatory Powers 'not to obstruct any general measures, common to all countries, which China may take for the development of commerce and industry in Manchuria,' but Japan subsequently secured from China, in a secret Protocol to the Peking Agreement of 1905, the promise 'not to construct, prior to the recovery (by China) of the (South Manchuria) Railway, any line in the neighborhood of, and parallel to, that Railway, or any branch line which might be detrimental to the interests of the South Manchuria Railway.'

"China's rights, which were thus amply protected by the Portsmouth Treaty, were again placed in jeopardy by her own diplomats in the later agreement with Japan. With all her bitter experiences to guide her, and confiding her interests in the hands of her most experienced officials, China blindly bound herself to another surrender of rights, and paved the way for future troubles.

"One of her most skilled and astute diplomats, Tang Shao Yi, a Columbia graduate, attended the conferences with the Japanese Plenipotentiaries, leading up to the final signing of the Agreement with its secret protocol, and he was therefore in full possession of all the facts and conversant with all the points at issue. There appears to be no doubt that the full significance of this secret clause was appreciated by China, for it is part of the records of the discussions that its bearing on future railway construction in Manchuria was carefully considered. It is also recorded in the published reports of the American State Department that, when questioned by the American Minister at Peking about this self denying clause, Tang Shao Yi categorically denied its existence. Tang was subsequently appointed Governor of Mukden on the organization of Manchuria into a vice-royalty, and shortly afterwards initiated the secret negotiations which terminated in the signing of the agreement with Lord French for the construction of the Fakumen extension of the Imperial Railways of North China, and with J. O. P. Bland acting for the British and Chinese Corporation for the loan. This work was therefore carefully planned and entered into on the initiative of one of the high Chinese officials thoroughly familiar with the stipulations of the secret clause, and the storm that would be provoked by an attempt to prove its practical application to the situation in Manchuria.

"The singular fact inferred from this action on the part of H. E. Tang Shao Yi, which was a complete reversal of policy on the part of China, compels the belief that the step was taken with the express design of forcing Japan's hand and testing the strength of the Peking Agreement, for as the clause was secret, Japan would necessarily have to make its provisions public, in the event of any infraction of the terms on the part of China.

"For some years past China has endeavored to recover some of the rights signed away by former inexperienced officials, and especially to regain control of her railways, and as far as possible construct future roads with her own capital. The Imperial Railways of North China, as its title indicates, is an enterprise controlled by the Imperial Chinese Government, with a British engineer in chief, imposed by the loan agreement of 1899. It is one of the most profitable railway enterprises in the world. The line is 600 miles long, and represents a total capital investment of \$49,394,426 (Mexican), of which amount \$27,600,000 (£2,500,000) was secured as a loan from British capitalists in 1899 at 5 per cent interest. The balance of

the capital, \$21,994,428, is held by the Imperial Chinese Government and native shareholders. The ratio of expenses to earnings in 1906 was 28 per cent, in 1907, 37 per cent, in 1908, 28 per cent. The receipts last year were \$11,067,677, and expenses \$3,075,567, leaving a credit balance of \$7,992,110, which, added to the credit balance carried forward from the previous year of \$6,658,763, made a total of \$14,650,875 for expenditure. After paying the fourth installment on the loan and interest, Chinese shareholders and other general expenses, and applying \$3,839,288 towards the construction of the Peking-Kalgan Railway, there was still a credit balance of \$6,296,215. In fact the surplus profits of this line are not only sufficient to carry on the construction of the Kalgan railway, but have also been pledged to guarantee the interest on other railway loans.

"Here is a road which not only provides for all its own improvements, branches, and all charges, but is actually building another 200 mile road, and also the rolling stock for various native roads in its car shops, and guaranteeing the interest on loans to construct others, all under Chinese supervision and free from foreign interference. The actual expenditure on capital account for the existing 600 miles of road is a little over \$80,000 Mexican per mile, and at this high rate an extension of 50 miles costing \$4,000,000 could readily be undertaken out of the present credit balance of the road, especially as the work would take two years to complete, and the expenditure spread out accordingly. Yet, despite the existing bitter opposition to unnecessary foreign loans, and the undoubted financial and engineering ability of the Imperial Railways of North China to carry on the work under its own supervision, it was considered necessary to build this little insignificant 50-mile extension to reverse the policy of the country and resort to a foreign loan, placed in Great Britain, and its construction contracted for by a British company.

"There is only one interpretation to this enigma. China, in her defenseless condition, could not successfully disregard Japan's opposition to the secret clause, and so adroitly laid her plans to secure powerful foreign assistance to carry her point, and ascertain Japan's interpretation of its meaning, and her future intentions. As British capital was already interested in the loan of the I. R. N. C. it was hoped that this fact in addition to the influence of the alliance would result in Japan consenting to the execution of the contract.

"The remarkable cleverness and diplomacy of Tang Shao Yi in enlisting this aid, by contracting with Lord French for the construction of the road, and with the British and Chinese Corporation for the loan, before Japan learned of his intentions, is only surpassed by the blind acquiescence in the scheme by the general public, and the acceptance of China's side of the dispute, because British interests were involved. British and American diplomats have also been adroitly led to report favorably on China's rights in the dispute, and the press generally has followed the same course.

"The refusal of the British Government to interpret Japan's attitude as threatening the doctrine of equal opportunities, and interfering with China's development has perplexed the leading British organs interested in Chinese affairs. To the disinterested observer, however, this position seems entirely consistent and comprehensible. In addition to a suspicion that the Fakumen scheme was 'a put up job' to discredit Japan, China has permitted the world to gain an insight into her future intentions to prolong the railway northwards to Tsitsihar and thence on to Aigun, with a branch to Kwang-cheng-tse to connect with the Kirin Road. While Japan might generously waive her interpretation of the secret protocol and permit the extension to Fakumen, without it resulting in any material damage to the interests of the South Manchuria Railway, she would naturally view with deep concern the establishment of a principle which would ultimately menace her present strategic and commercial advantage in Manchuria. So it is quite con-



receivable that the fair-minded, conservative statesmen at the head of affairs in London would extend their moral support to Japan in this question, and cement the alliance for powerful political reasons, rather than be made the instrument of Chinese political intrigues, or be guided by an appeal to protect a contract which was so evidently negotiated by China, for the set purpose of creating discord in the harmonious relations existing between the Allies.

"China has proposed to submit this matter along with other issues to the Hague for settlement, but Japan has refused on the grounds that it can be settled out of court through regular diplomatic channels. This would indicate that Japan is willing to compromise and permit the extension to Fakumen at least. China's rights to develop her own territory are indisputable, but in this instance China has again hampered her liberty of action by signing ambiguous agreements. The wording of the document leaves its construction open to argument, and until a compromise is effected on the definite meaning of 'in the neighborhood of, or parallel to, and branches detrimental to the Japanese road,' both sides can place a wide construction on their meaning. The best friends of China must acknowledge that she has entered the agreement with her eyes open, and fully realizing the evils that could arise from a selfish interpretation of this self denying clause. The censure if any is not applicable to Japan, but to the high Chinese officials who, having past experiences in mind, allowed themselves to set their seal to such an agreement."

In addition to the Fakumen Railway question, the Antung-Mukden reconstruction and other important issues had been on the board for a long while without any serious attempt being made by either side to settle outstanding differences and get down to an amicable adjustment and working arrangement. The Chinese were, to all appearances, intentionally delaying and postponing settlement, after Japan's refusal to submit their differences to the Hague. A change of Viceroys in Manchuria at the most critical stage of the negotiations only helped to complicate and finally bring matters to a crisis. It was easy to foresee the end of the trouble. Any one not blinded by prejudice could foresee the humiliation awaiting China in the event of a prolongation of the situation.

The issues at stake in Manchuria were of such vital importance to China, that unusual tact and diplomacy were necessary to avert disaster. No people in the world are more sensitive than the Chinese or Japanese, and any reflection on their honor is taken keenly to heart. Yet we find that in addition to the dilatory tactics of the new viceroy of Manchuria the Chinese native and foreign subsidized organs were carrying on a persistent nagging and insulting attack on Japan and her people. Human nature is much the same the world over, and news-

papers are very quick to reflect public or official opinions. If *The London Times*, with its reputation as the official mouthpiece of Great Britain, was to descend into vituperative and insulting language against Germany, it is not difficult to prophesy the result. Public opinion in America was probably more incensed against Spain by the reproduction of the scurrilous and indecent remarks of the irresponsible Spanish press than by the actual situation in Cuba.

And when a foreign paper published in Shanghai, as the acknowledged organ of the Chinese authorities, follows the same insulting line of attack on Japan, the result is the same. China has yet to learn the following quotation from Lecky's "England in the 18th Century."

"Most modern wars may be ultimately traced to national antipathies which have been largely created by newspaper invectives and by the gross partiality of newspaper representatives."

Irresponsible newspaper writers on both sides brought about the Spanish-American war, and a conflict between America and Japan has only been averted through the strong common sense of the leading men of both nations. Yet Chinese officials blindly support a foreign paper whose professed policy is to hold Japan up to the scorn of other nations, and to generally create discord amongst all others. When China permits her official documents to be first published to the world through the medium of a paper, whose existence is an insult to Japan, she has only herself to thank for the bitter animosity created. When later on she has so wounded the pride of Japan through the insults of her paid organs and the inevitable happens, then, and then only will China learn her lesson. But it will be too late.

If China has been deeply wounded in her pride, and humiliated before the world by her aggressive neighbor, she can extend a large share of her thanks to the efforts of a paper, whose insulting policy towards Japan has brought about its inevitable return. And when in the future if such a policy is persisted in, China alienates the friendship and good will of many of her best friends, she can still thank the insulting efforts of an official paper, who charges mercenary motives to all those who may disagree with its ululations.

The Fakumen question has been relegated to a back seat. The Antung-Mukden crisis brought about a speedy adjustment of all outstanding differences between China and Japan. The recent Manchurian Convention between the two countries settled the long drawn out Fakumen Railway dispute as follows:

#### ARTICLE I (MANCHURIA).

"The Government of China engages that in the event of its undertaking to construct a railway between Hsinmintun and Fakumen, it shall arrange previously with the Government of Japan."

This agreement, however, is only a temporary settlement of the question, and it is bound to be reopened in another form.

for building the railway connection between Chefoo and Wei-hsien. This line will penetrate into the heart of Shantung Province and would bring to a Chinese port the produce of a very wealthy district.

"At this present we are informed that the Germans are most strenuously opposing its construction much on the same grounds as the Japanese have been opposing the extension of the Railways of North China to Fakumen and beyond.

"As a matter of fact the Chefoo line would run at right angles to the present Tsi-nan-fu Tsintau railway and would tap a considerable district which that line cannot hope to reach.

The German opposition to its construction is much of the same quality as that of the Japanese in Manchuria. Their idea seems to be that the further opening up of Shantung Province will divert the natural trade from the German port of Tsintau. This is tantamount to asserting that Germany, having leased a port in that Province and having obtained a concession to construct a certain branch of railway, has thereafter the right to close the whole province to further schemes of development, unless, perhaps, the planning of same is left in German hands to the end that they may divert the whole trade of the province to their leased port.

"This is surely equivalent to a declaration that by leasing Tsintau to Germany China forfeited the right to facilitate trade with any of her own ports in that Province. This is, on the face of it, an absurd and unreasonable contention. Great Britain would under such circumstances also have a right to demand a similar privilege with regard to Wei Hai Wai. How would Germany be able to combat such a demand, both countries having treaties under the 'most favoured nation' clause, with China?"

"Surely then the owners of the province, ports in which only have been leased ostensibly merely as 'naval bases,' to the right of developing the resources of such province in whatever way they see fit.

"The line in question was sanctioned by the Throne many months ago. The money is forthcoming for its construction and everything is ready to proceed to work, but we hear the German officials in Shantung have forbidden its commencement. We hear also rumours, though we trust for the credit of Germany that they are untrue, that threats have been made that Germany will utterly ruin the promoters of the scheme and all officials who do not obstruct its successful carrying out; and have dared them to make complaint to the Throne. This sounds impossible, but it seems certain that the delay in the construction of the line does not come from Chinese sources.

"We trust that enquiry may be instituted, by the Board of Posts and Communications, which may lead to the removal of the obstruction, whatever it may be, and the speedy commencement of the construction of the line, to the benefit of the Province of Shantung and the Imperial Exchequer."

This was nearly a year ago, yet the road is still in the visionary stage. It would appear, however, that much of the delay arises from the fact that the Chinese cannot raise the necessary capital for the construction which is estimated at \$10,000,000. A meeting of leading merchants in Chefoo last year succeeded in placing \$1,000,000 in \$5 shares, and application was made to the Board of Communications at Peking for permission to start the line. When the sum of \$2,000,000 was fully subscribed, it was intended to commence operations. After all the requirements of the Central authority were satisfied, the road was officially sanctioned.

The following is a translation of the rules and regulations drawn up at the meeting of merchants with regard to the above enterprise published in the *Chefoo Yih Pao*.

1.—The corporation shall be styled as "The Shantung Mercantile Chefoo-Chining Railway Company Limited."

2.—The Company proposes to raise a Capital of \$2,000,000, divided into forty thousand shares, of \$5 per share, of which the first instalment of 20% will date from the 1st day of the 2nd moon and to rank as Share Certi-

## CHEFOO-WEI-HSIEN-RAILWAY

(Chefoo Chining Railway Co., Ltd.)

A railway project which has been on the boards for the last three years is the construction of a road from the port of Chefoo, on the northern coast of Shantung Province, to the inland town of Weishien on the German Shantung Railway. The building of this latter road has diverted the trade to Tsingtau, which formerly found an exit in the treaty port of Chefoo, and the native merchants and Chinese officials naturally view with deep concern the growth of the exclusive German trade port and the decline of Chefoo. The situation in Shantung is almost identical in some respects as in Manchuria, where the Japanese port of Dalny is being built up by the railway company, and the treaty port of Newchwang is steadily losing ground. Formerly Newchwang on the north was the natural outlet for Manchuria, and Chefoo held the trade of Shantung. With the building of the railways and granting of preferential rights and leases of territory to Japan and Germany, the old treaty ports have been gradually overshadowed by their

more favored rivals, and today Dalny has superseded Newchwang as the port of Manchuria and Tsingtau denominates the trade of Shantung to the prejudice of Chefoo. As in Manchuria where China ceded preferential railway rights to Japan and bound herself not to build any lines which might compete with the South Manchuria railway, so in Shantung China agreed that German capital should have preference in the development of the province in case foreign capital was called on. While the Fakumen railway project in Manchuria was entered into by China from purely political motives to overcome Japanese preponderating influence in Manchuria, it seems clear that no such motives underlay the proposed railway in the German sphere. However *Chinese Public Opinion*, the official native organ at Peking, stated in regard to this project under date of December 24th ulto:—

"One of the most profitable railway ventures yet proposed in China is undoubtedly the scheme



ificates pending the issue thereof—30% to be raised in the following year in monthly payments, and the remaining 50 per cent in the 36th year of Kwang Hsu: said scrip to be exchanged in due course for Share Certificates, and interest to be paid thereon. To prevent abuses or fraud owners of Scrip or Share Certificates that may be lost or destroyed by fire should advertise the fact in the public press, and at the same time notify the company, who will, after the expiration of three months, should no claim be made thereon in the meantime, cause new Certificates to be issued in lieu thereof.

3.—Upon the organization of the Company the twenty Promoters shall *ipso facto* become Members of the Board to be constituted in the manner as hereunder set forth:—

- |   |          |
|---|----------|
| (a) A Director—to hold at least shares to the value of..... | \$20,000 |
| (b) Assistant Director.....                                 | 10,000   |
| (c) Advisory Committee.....                                 | 5,000    |
| (d) Consulting Committee.....                               | 2,000    |

Only Shareholders with the above qualifications are eligible for the Offices named at the General Meeting.

4.—The original purport of the company is to construct the line from Chefoo to Chiningchow, but owing to difficulties due to time and the lack of proper survey of the interior, the promoters deem it advisable for the present to build the track as far as Weih sien.

It is apparent however, that there is some serious hitch in the program, as no further progress has been reported.

A recent article in *The Tientsin Sunday Journal* says of this project:

"The question of a railway line from Chefoo to Wei-hsien is still a burning one among the native merchants in Chefoo, Laichowfu and Tungchowfu prefectures. A great deal of talk has been done, but no decision has yet been arrived at.

"A few months ago, a Chefoo merchant named Shao applied to the Board of Commerce to be granted the concession of this line. The Board of Commerce instructed the Governor of Shantung to make inquiries as to the methods Shao intended to adopt. The Chefoo native Chamber of Commerce and the Customs Taotai went carefully into the matter and

found out, without much trouble, that Shao could only put up a ridiculously small capital, and that moreover he had really not the least idea about the concession he had applied for. His petition has therefore been rejected by the Board of Commerce, so that matters are at the same stand as they were when the question of building this railway was first started.

"A very wealthy Chefoo merchant has now come forward with a better defined and practical programme. He proposes to set the ball rolling and has offered to put up two million dollars. He has asked that the Concession be transferred to him, and he will get his brother merchants to subscribe substantial amounts, so as to bring up the total capital to a size sufficient to enable them to begin active operations.

"Governor Sun Pao-chi realizes that whatever capital the merchants may subscribe, it will be quite inadequate to cover the cost of constructing a line 700 li in length. The cost of the line is bound to reach a very high figure. His Excellency does not see how it will be possible to construct the line without the financial assistance of the Central Government. Governor Sua thinks that the best plan will be to put the scheme in the hands of the Government.

"It is now proposed that, in addition to the capital to be put up by the Shantung merchants, to apply to the Government for a subsidy to meet the balance of capital required; and to put the line under the direct control of the Board of Communications. H.E. Sun has asked H.E. Luhaiwan to draw up a memorial to present to the Government.

"The Governor agrees with the merchants, that a railway line to Chefoo is of vital importance for the preservation of the trade both of this port and the commercial centres of the interior.

"The ports of Tsintau and Talienwan (Dairen) have caused much damage to the export trade of Chefoo and Laichowfu. Tsintau has practically captured the whole of the strawbraid and raw silk trade from Chefoo; while Dairen is doing active competition in the oil trade. This competition can only be counteracted by building a railway line as soon as possible.

"H.E. Sun Pao-chi intends to do all he can to influence the Central Government in favour of this railway project."

## THE WU-KUANG RAILWAY (Wuhu-Kwangtehchow.)

This enterprise is also known under the style of the Anhui Railway Co., Ltd. It had its inception in 1906 when Lord Li Ching-fang, adopted son of the late Li Hung Chang, formed a company with himself at the head for the construction of a road connecting the treaty port of Wuhu on the Yangtze with the town of Kwangtehchow on the Chekiang border, a distance of about 150 miles. The direction of the proposed line is about south-west from Wuhu, passing through the towns of Wunchih and Ning Kwo Fu to Kwangtehchow and thence a few miles to the provincial boundary. Here the line was to connect with a branch of the projected Chekiang Railways to Hu Chow fu, or some point north of Hangchow, thus bringing Wuhu into rail communication with the systems centering at Shanghai. The initial steps in the formation of the company were conducted quietly and the outlook under Lord Li's direction was very promising. Li Hung Chang, at the time of his death, was reputed to be the wealthiest man in the world, and the millions inherited by Lord Li were expected to guarantee the rapid completion of the new road. Under Lord Li's direction the final survey of the line was concluded early in 1907 by a representative of Pauling & Co., Ltd., Mr. Muller, a Norwegian engineer engaged, and bridge girders, rails, sleepers, etc., were ordered for early delivery. A large block of river front land was purchased at Wuhu and building operations commenced. A canal about one quarter of a mile in length was also to be built with wharves on one side for river junks to load and discharge cargo. Wuhu is the center of one of the richest rice districts in China, and is the chief port in which this staple is marketed and exported to other parts of the empire. The reclamation work at the Yangtze terminus was commenced in 1906. It is reported that the sum of Taels 4,000,000

(\$2,600,000 gold) had been subscribed. Just as work was progressing satisfactorily and the outlook brightest in May, 1907, Lord Li Ching fang, the director general, was appointed by the Throne to the post of Minister to Great Britain. From the time of his departure the affairs of the company have gone to from bad to worse, and finally the work stopped for lack of funds. Officials of the Board and engineers examined the work completed in April last and there were rumors then that permission would be granted to float a foreign loan.

The amount necessary to complete the line is estimated at Taels 5,000,000 and the Board of Communications has since urged the shareholders and Anhui gentry to raise this sum and complete the line by 1913.

There are other projected roads in Anhui province, but none of these have taken definite shape, though it is reported that a short industrial enterprise has recently purchased rolling stock for the conveyance of its products. Early in May, it was reported that the Board of Communications had cancelled an agreement concluded by the British firm of Pauling & Co. and the Director-General of the Anhui Merchants' Railway Co., Chou Hio-hsi, son of the former Viceroy of Liangkiang, Choufu. According to this agreement, the British Company had to provide a loan of about Tls. 10,000,000 and to build the various lines of railways in the province of Anhui. Delivery of railway materials and the management of the line was to be reserved exclusively to the British Company. The Board of Communications, while not opposed to the loan, rejected the condition that delivery of material and management should be exclusively in British hands.

The contract was objected to by the metropolitan officials, natives of Anhwei province.

## NOTICE

Offers are invited for the property, buildings, mill, ice plant and engines formerly belonging to the Hongkong Milling Co., Ltd., and situate at Junk Bay in the Colony of Hongkong, particulars whereof are as follows:

1. *Property*:—New Kowloon Marine Lot No. 4, situate in Junk Bay, immediately outside the Lyemun Pass, within the New Territories of the Colony of Hongkong and half an hour by launch from the City of Victoria. The lot has a clear sea frontage of about 780 feet, reclaimed, levelled and walled, off which there is available draught of water to permit of easy access by large ocean going steamers. Area:—189,300 sq. ft. Held under Crown Lease for the residue of a term of 75 years from the 7th February 1905, at an annual Crown Rent of \$434, with a right of renewal for a further term of 75 years, upon certain conditions. Included in the demise is a right of user of a fine supply of fresh water from a stream adjoining the lot.

2. *Buildings*:—Mill and Cleaner House, 5 floors each, 50' X 140' and 15' average clear height. Engine House, 65' X 30' X 18' (high). Workshops, 60' X 22' X 18' (high). Grain godown, 156' X 280' X 36' (high). Flour Godown, 156' X 80' X 36' (high). Latrines. Oil Tank, 18' 6" (diameter) X 17' (high). All built of red brick in cement mortar and completed in the year 1906. Bran godown 146' X 40' X 20' (high), built of timber covered with galvanized corrugated iron. 50' T head timber wharf extending 30' beyond sea wall.

3. *Mill*:—A Double Unit Flour Mill complete, with a guaranteed capacity of 1600 barrels of flour of all grades per run of 24 hours, but under favorable milling of Pacific Coast wheat will produce 2,000 barrels per 24 hours. Supplied by the Wolf Co. of Chambersburg, Pa., U.S.A., at a cost of over U. S. \$75,000. Erected in the year 1906 and guaranteed of the then most modern design and full sized.

4. *Ice Plant*:—One Can Ice making Plant on A Borsig's (Berlin) Anhydrous Sulphuric Acid System, with compressor, open air condenser, liquid cooler, ice tank, cans, frames, etc., can filter, belt driven crane for moving frames with ice cans, thawing off tank with tipping device, complete distilling plant, with pipes, valves, pumps, shafts, etc., complete. Producing about 20 tons per 24 hours in blocks about 50 lbs. each. Erected in 1908 and costing about Mex. \$50,000.

5. *Engines*:—Three 3-cylinder Diesel Engines supplied in 1906 by Sulzer Bros. of Winterthur: two 250 hp. each and one 150 hp. Worked for about 18 months from beginning 1907. One 100 kw. generator 250 volts and one two panelled switch-board.

Offers for the above *en bloc* or in detail should reach the undersigned, from whom any further particulars may be obtained, not later than the 31st December, 1909.

DEACON, LOOKER & DEACON,

Solicitors for the Mortgagees,  
1 Des Voeux Road,  
HONGKONG.



# IMPERIAL RAILWAYS OF NORTH CHINA

It was not until 1878 that any successful attempt was made to introduce the railroad into China. It came finally with the assistance of Director General Tong King Sing of the China Merchants Steam Navigation Company and Li Hung Chang, Viceroy of Chihli. The former was interested in securing a coal supply, and the latter, while previously opposed to the Shanghai-Woosung line, became interested with Tong King Sing in establishing collieries in the Kaiping district in Chihli and, between them and their friends, the Chinese Engineering and Mining Company was formed. The first shaft was sunk at Tongshan in 1878. From this point to Pehtang the nearest port available was about 30 miles. The question of transportation became vital to the success of the company and even to Viceroy Li Hung Chang the railroad now appealed strongly. After some delay a railway was sanctioned by the Peking authorities and Mr. C. W. Kinder was appointed resident engineer in charge of construction. Suddenly for some reason the approval of this line was withdrawn.

The company, failing to secure reconsideration, proceeded to construct a canal from the colliery to Lutai, the nearest point on the Pehtang River. There were seven miles between the end of the possible canal and the colliery, and to cover this distance the Imperial authorities were induced to permit the construction of a tramway of standard gauge with the proviso that mules only would be used for motive power. The standard gauge for this mule tramway was secured only after a hard fight by the resident engineer and in 1880 the line was completed, and the first permanent step taken in introducing the railway in China.

Mr. Kinder did not propose to depend upon mules for his tramway for lack of persistence. He had succeeded in his fight for a standard gauge and he was encouraged to fight for a locomotive. Without consulting Peking, he proceeded to build a locomotive out of a portable winding engine and old iron picked up at the mines. It was not a fancy production but it served the purpose. Its cost was approximately 500 Mexican pesos and it was christened "The Rocket of China" on June 9th, 1881, by Mrs. Burnett, wife of the Engineer-in-chief of the company. As soon as Peking heard of this monster being substituted for the mules, an order was received prohibiting its use. It took some weeks to induce the authorities to withdraw their objection, but this was finally accomplished and "The Rocket" went into commission on construction work. This was the thin edge of the wedge that made for the general introduction, slowly but surely, of railways into China, and it is of interest to note that the success of this initial venture was entirely due to the recognition by Viceroy Li Hung Chang and Tong King Sing of the advantages of the railway for transportation purposes in opening up the rich coal deposits of Kaiping and especially so in view of the fact that each of these enterprising Chinese were personally interested in the success of the mining venture.

This initial railroad venture from the Mines to Hsukochuang was a success and two addi-



C. W. KINDER, C. M. G., M. I. C. E., ETC.

THE RETIRED GENERAL MANAGER AND ENGINEER-IN-CHIEF OF THE I.R.N.C.

tional locomotives were secured in 1882. But Mr. Kinder saw his opportunity to extend the line. He succeeded Mr. Burnett as Engineer-in-chief in 1882 and at once began to urge the extension of the tramway to Lutai and succeeded with the assistance of Viceroy Li Hung Chang, now impressed with the value of the railroad. The Kaiping Railway Company was formed with a capital of \$250,000 to take over the tramway and carry out the construction of the extension. A Chinese member of the British bar named Wu Ting Fang was given the management of the company and work was begun at the Hsukochuang end in 1886 and six months later it was completed and rolling stock, including an American locomotive and forty ten ton coal cars, purchased.

Then Viceroy Li Hung Chang became the champion of railway extension in earnest and by the time this line was completed to Lutai, the viceroy had a memorial before the Imperial authorities urging the extension of the line to Tonghu, and on to Tientsin on the grounds that such a road was a military necessity and would tend to the better protection of the empire from invasion. This fortunately struck the right chord and the scheme was approved and directed executed. The name of the company was changed to the China Railway Company and a prospectus issued asking for subscriptions of Tls. 1,000,000, the Hongkong and Shanghai Banking Corporation being made bankers. This prospectus was endorsed by the Viceroy, but notwithstanding this influence it was with great difficulties that the promoters financed the scheme. The section to Tongku was completed in April 1888; in August, Tientsin was reached; in October the viceroy inspected the entire line, and in November two trains passed daily between Tongshan. The item of cost of construction of this line was exceedingly low. It averaged about £5,000 a mile.

Permission was then asked to extend the railway from Tientsin to Tungchow, a point about 12 miles east of Peking as well as to extend the line eastward to Shanhaikwan. This roused the reactionary party at the capital who opposed the Tungchow extension on the ground that it would expose the capital to foreign attack. This fight against the extension was carried to extremes and resulted not only in blocking the decree, but by inciting the junk owners to the extent that the bridge over the Peiho at Tientsin, then being constructed to connect the foreign settlements with South Tientsin, was directed destroyed by the viceroy to quiet the people. But the extension to the east were completed to Kuyeh in 1890. In 1891 the extension to Shanhaikwan was authorized and the Chinese Imperial Administration was formed with Mr. Kinder, Engineer-in-chief, to carry on the work which was completed in 1894.

In the meantime permission had been granted to continue the railway to beyond the great wall, and in 1894, at the outbreak of the war with Japan, the line had been constructed to 40 miles beyond Shanhaikwan. The following year the war was concluded by the treaty of Shimonoseki at which His Excellency Li Hung Chang represented China. Upon his return he took up the matter of the Tungchow extension, the sanction for which had been withdrawn in 1888, with the result that it was renewed with a change of terminus to Lukouchiao and construction began in 1895. The line however was not built to Lukouchiao, but to Fengtai and from there later to Machiapu. This change was made without authorization, but was accepted by the Chinese apparently without protest.

In the meantime the line of the China Railway Company from Tientsin to Kuyeh was taken over by the Imperial Railway Administration and the shareholders of the company were reimbursed for their script by government bonds bearing five per cent. Up to this time the liabilities of the Imperial Railway Administration was Tls. 2,540,000 divided as follows:

Hongkong-Shanghai Banking Corporation advances, Tls. 1,240,000; due the Russo-Chinese Bank, Tls. 600,000, and due the Deutsche-Asiatische Bank, Tls. 700,000. To take up these liabilities and carry on the extension to Hsinminting, it became necessary to float a loan, and for this purpose Hu Yen Min, the governor of Peking and Director General of the Chinese Imperial Railway Administration, with the British and Chinese Corporation, a Syndicate formed by the Hongkong and Shanghai Corporation and the firm of Messrs. Jardine, Matheson & Co., and a loan for Tls. 16,000,000 to be used as implied in the contract: "For the construction of a railway line from Chunghousa to Hsinminting, and a branch line to Yingkow, and for the redemption of previous loans to the Tientsin-Shanhaikwan and Tientsin-Lukouchiao lines." Then followed a Russian protest on the ground that it interfered with Russian rights in Manchuria. The Russo-Chinese Bank entered into competition to handle the loan on more favorable conditions. Finally the matter was adjusted and an understanding arrived



I.R.N.C.—THE TONGSHAN CAR AND LOCOMOTIVE WORKS.



at by which Russia was practically recognized as having the right to extend her railway interests to South-Western Manchuria and by which Russia agreed not to seek railway concessions in the Yangtze valley. The reference to the construction of the line to Hsinminting provided that it should be built by China and that European engineers be allowed to inspect the work. The loan agreement was, however, signed June 15th, 1898, and construction commenced in the autumn of the same year. After overcoming many difficulties the line was extended to a point 30 miles beyond Yingkow by February 1900. From Kaopangtzu the line was then extended further for 20 miles when the Boxer troubles intervened.

In the meantime, Hu Yen Mei was succeeded by Chang Yen Mao. The latter was not in sympathy with Engineer-in-Chief Kinder and not a few attempts were made to have Mr. Kinder removed, but without success, and it must have been gratifying to this successful and enterprising engineer and railway pioneer that his services were recognized by his sovereign at this time and as a mark of Her Majesty's esteem created a Companion of the Order of St. Michael and St. George.

The Boxer troubles interfered greatly with the program under way and the invasion of the allies for a time threatened international complications over the line. The council of the allied admirals gave over the control of the

to Hsinminting in the latter part of 1903. An estimate of the cost and equipment of this line, a distance of 588 miles in all, is placed at about \$40,000 gold a mile. The net revenue for this line has given a return of 4.75% on capital invested, for 1903; 7% for 1904; 20.75% for 1905 and 18.25 for 1906.

The connection between Hsinminting and Mukden is a narrow gauge built by the Japanese during the Russian-Japanese war and taken over in 1907 by purchase by the Imperial Railway Administration.

The building of the six mile branch from Tangho on the Peking-Shanhaikwan line to Chinwangtao, a few miles to the South of Shanhaikwan, was another addition to the facilities of the line as a result of the Boxer troubles.

Up to the end of the fiscal year September 1908 the capital authorized and created for the I.R.N.C. amounted to a total of Mexican dollars 49,594,428.57 of which \$21,994,428.57 is represented by the interest of the Imperial Chinese Government and Chinese shareholders. The balance of \$27,600,000 is represented by the 1899 loan of £2,300,000 from the British & Chinese Corporation, officially known as the Peking-Newchwang Railway Loan, running for 45 years at 5% interest. Of this loan, after paying the fourth drawing in 1908, there remained the sum of £2,070,000 (\$24,840,000 Mex) outstanding on the 30th of September 1908.

The Expenditures on capital account stand

gave the road a working credit balance of \$14,650,873.20.

This is accounted for by the following expenditures:

To debenture Loan, 4th instalment.....	690,000.00
To debenture Loan Interest.....	1,172,570.67
Chinese Shares and Notes.....	21,819.43
Reconstruction of Boxer Damage.....	77,305.30
Paid to Imp. Ch. Govt. to % of Peking-Kalgan Ry. construction.....	3,839,288.25
Hsiling Line, Working.....	67,425.58
Hsin Chiu Mine & Survey.....	204,165.03
Shipping Department.....	60,203.11
Tongshan College, Upkeep.....	70,982.94
Bonus to Employees.....	197,285.70
Betterments taken from Revenue for capital %.....	1,953,611.53
Balance on hand.....	6,296,215.66
	<hr/> \$14,650,873.20 <hr/>

SHANHAIKWAN BRIDGE WORKS—Close by the line at Shanhaikwan, branch shops have been erected and designed especially for the construction of bridge work. The plant is fully equipped to cope not only with the requirements of the I.R.N.C., but also to handle the business for other roads in China. In fact the works were laid out on a large scale, hoping



I.R.N.C.—PEKING TERMINUS.



I.R.N.C.—THE OLD PEKING STATION.

Tientsin-Tonghu section to the Russians. The latter later assumed control of the Tientsin Yangtsun section but found the British established at Fengtai. The strained relations between the British and Russians was somewhat accentuated by the proposal of Count von Waldersee to give the Russians the supervision of the Yangtsun-Shanhaikwan section and the German military to take charge of the Peking-Yangtsun. The British landed at Shanhaikwan in September, and in October a Russian force arrived and claimed the line from Newchwang to Tonghu by right of conquest. Count Waldersee's order was revoked soon afterwards and by January, 1901, an agreement was arrived at by the different powers whereby the Russians retired and the Peking-Shanhaikwan section was turned over to the British the latter part of February. In March there were more conflicts of interests in Tientsin, but a clash was avoided and while the differences were engaging the British and Russian governments the British Railway Administration was busy repairing the line. In August, 1902, the provisional military government in Tientsin retired and Viceroy Yuan Shih Kai took charge and it was not until October, 1902, that the British Administration assumed charge of the Shanhaikwan-Newchwang section to be turned over later to the Chinese Imperial Railway Administration. During the period that the British Administration was in control a twelve mile branch was built to Tungchow at a cost of £30,000.

With the renewal of active construction after the Boxer troubles the line was completed

at \$24,000,000 to permanent way; \$2,142,857.14 expended under the provisions of clause 2 of the Loan Agreement for improvements and additions to the rolling-stock recommended by the British Chief Engineer, and then estimated at Tael 1,500,000; the extension to Tungchow, \$360,000; Lines under construction, \$18,435,652.59; Extension to Hsiku, \$305,353.89; Hsinminting-Mukden Line, \$1,624,428, a total of \$46,868,292 to capital account, leaving a credit balance of \$2,726,136.38 against the total capital of \$49,594,428.57.

About one sixth of the total expenditures on capital account was paid from profits, the amount at the end of September 1908 standing as follows:

Rolling stock.....	\$584,243.92
Yard Buildings & Track.....	802,015.92
Tongshan Engineering School....	91,268.98
Tongshan Works.....	476,082.71
Expended in 1908.....	1,953,611.53
Expended in previous years....	5,812,467.47
Total.....	<hr/> \$7,766,079.00 <hr/>

The Revenue account of 1908 was, EARNINGS—Passengers, \$4,898,632.50; Freight, \$5,861,195.14; Military Traffic, \$51,079.92, and Miscellaneous, \$256,769.56; a total of \$11,067,677.12. EXPENDITURES: Maintenance, \$653,149.00; Rolling Stock, \$1,329,285.86; Traffic \$375,168.10; General Charges, \$517,964.16, a total of \$3,075,567.12, leaving a profit of \$7,992,110.00.

A credit balance carried forward from 1907 of \$6,658,763.20 in addition to the above,

that with the support of the government a large industry would eventually develop, with the construction of other government railways. However, so far the hopes of the directors have not been realized, for despite official approval and support, new bridges for other roads are invariably ordered direct from abroad. This is undoubtedly due to the high cost of transportation and handling involved in shipping the steel to Chinwangtao, thence by rail to Shanhaikwan, and the subsequent rehandling and final shipment to point of destination in China. These charges effectively counteract any advantages the shops may possess from a wage standpoint, and confines their sphere of usefulness to a very restricted territory. Bridges for the I.R.N.C. and their extensions will continue to be made here, and with the proposed extensions northwards to Tsitsihar, the works may some day justify their existence. In 1907 only 1061 tons of steel work were handled, which was confined to 22 spans of 100 feet for the Liao River bridge, and the caissons. The Newchwang ferry steamer was also completed. In 1908 the tonnage of work turned out was 1,498 tons. The outlook for the future prosperity of the plant is dismal as nearly every railway in China follows its own ideas in regard to bridges instead of adopting the Government Standards. The directors of the road, or those in charge of the works, speak of the situation as regrettable, and advocate compulsory acceptance of these standards adding that "imported girders are rarely as good as those built at Shanhaikwan, and only in Southern China can they be procured any





I.R.N.C.—TONGKU STATION

cheaper." In stating that the refusal of other roads to patronize the Shanhaikwan Works is largely due to a desire to purchase only through certain channels, the Engineers' Report for 1908 permits the public to place its own construction on its meaning. It is fair to assume, however, that the Shanhaikwan Works under the supervision and control of British Engineers follows closely along British principles of bridge building and British standards of structural steel forms. The permanent or compulsory

tain load, following the well established British desire for permanency and extra over load factor for safety. And I have heard American comments to the effect that the same bridges on which it was impossible for them to tender owing to the use of standards and sections only manufactured in Great Britain, could have been designed to carry the same load, and with as great a factor for safety, by the use of much less material and consequently at a much reduced cost. British bridge builders have erect-

ed some of the best structures in the world, and the Americans also claim to have engineered a few works of importance, and the question is of course a very delicate one to handle and comment on in a field like China.

Unless a combination of both national bridge principles and steel sections are officially adopted as the standard for China, regulations favoring any one country will hardly be accepted without strenuous opposition by competitors.

The lack of orders and work for the Shanhaikwan Shops will probably result in their closing down in the near future, unless as intimated, the Tsitsihar extension of the I.R.N.C. is sanctioned and financed.

The new Liao River Bridge, 2000 feet long—the second longest bridge in China—consisting of 20 spans of 100 ft. each, was built at the Shanhaikwan Shops, and successfully erected under the supervision of the railway engineers. Concrete foundations for the piers were carried down to a depth of 70 feet below the river bottom and great vigilance and care was necessary to provide against the destruction of the work at the spring break up of the ice bound river.

**TONGSHAN WORKSHOPS.**—The locomotive and car shops of the I.R.N.C. are located at Tongshan and are undoubtedly the largest and best equipped works in China or Eastern Asia. The illustration of the works will give a fair idea of their extent and importance.



I.R.N.C.—TCHENG-TAO STATION.

adoption of such principles as Standard for all roads in China is of course a most laudable ambition for those having the works in charge and would result in giving British steel manufacturers a practical monopoly for the future bridge business of China, freezing out continental or American makers.

In these days when specifications can be so adroitly worked out and manipulated so that an ordinary innocent set of requirements may call for something which can only be supplied by a certain manufacturer it is hardly fair to all concerned in the development of China that any one national set of standards be permanently applied to the building of roads or bridges. I have heard it stated—of course it cannot be accepted as a fact—that British bridge designers, responsible for railway bridges in China, are rather extravagant in the weights and quantities of steel employed to carry a cer-



I.R.N.C.—PEITAIHO STATION.



I.R.N.C.—TONGKU STATION





I.R.N.C.—NEWCHWANG TERMINUS

Locomotives and cars are here designed and built not only for the requirements of the I.R.N.C., but also for other roads in China. Under the supervision of the ex-General Manager, C. W. Kinder, C.M.G., and the Shops' Manager, Mr. Jamieson, the Tongshan Works have established a high reputation for the quality of work turned out, especially in the construction of cars. As will be seen from the accompanying illustrations, standard cars and locomotives for all services have been designed and built for the road and accepted as standard by the Central Railway Board for use on other roads. The work is of a high quality specially adapted for China's requirements according to British ideas and practice.

In 1907 the new works were practically completed and the old car shops were turned over to the Chinese Engineering & Mining Co. The general arrangement of the new car shops established near the main works is that of one open traverser pit affording accommodation for buildings of a total area of 140,000 square feet.

In 1908 the I.R.N.C. had a total equipment of 267 passenger coaches, 2,743 freight cars with a capacity of 53,843 tons, and 126 locomotives of a total of 5,569 tons weight. In 1907, the car shops turned out 223 new cars for the use of the I.R.N.C. of which only 3



I.R.N.C.—NEWCHWANG STATION

British ideas, British standards and British principles predominate in all work turned out by the Tongshan shops. Through closer intimacy and contact with the authorities at Peking, and the fact that all profits of the undertaking go to swell the government revenue, those in charge of the Tongshan shops have influenced the adoption of their cars as standard for all of China. Sooner or later order

must come out of the existing railway chaos, and China compelled to follow some standard practice, so that interchange of freight and passenger cars can be carried out on various connecting roads. On these standards will depend to a large extent the future control of the railway market of China. At present Great Britain leads. With British Engineers controlling the largest government car works in the Empire and constructing cars for other roads, British railway principles are in a fair way to become standard and dominate the field.

Most of the locomotives in use on the I.R.N.C. have been secured from British makers and

naturally have given great satisfaction. Some American locomotives have also been purchased and have naturally given great trouble. In fact I know that the working of British and American engines on this road has been employed to influence the acceptance of British tenders for other roads. Whereas British engines, on the I.R.N.C., have always given every satisfaction, the American engines, it is urged, spent a great deal of time in the shops under repair and costing much more for running expenses than the British ones.

With the complete indifference of American manufacturers to this great field, and their refusal to look the situation square in the face, there is only one termination to the unequal contest. With British, German and French engineers insisting that the worst make of their own nationals is superior to the other fellow's and any of them better than American, it is difficult to see what the latter is going to get out of the field. Only when Chinese roads are untrammelled with Loan Agreements, has American material stood a chance, and aside from this, whatever progress has been made to date with American cars and rolling stock in China is largely due to the push and hustle of the Japanese.

It is a foregone conclusion that the ideas of the British managers of the I.R.N.C. will ultimately influence the Central Railway Board's selection of permanent standards for the Empire.



I.R.N.C.—TONGSHAN STATION

were for passenger service, and 163 cars were constructed for other roads.

In 1908 the works completed 100 cars for its own service, and in addition constructed the following cars for other roads:

#### KALGAN RAILWAY:

Composite Coach.....	1
Pony cars.....	26
Pig cars.....	10
30 Ton Covered Goods Cars.....	4
30 Ton High Sided cars.....	29
30 Ton Low Sided cars.....	29

#### KIANGSU RAILWAY:

30 Ton Low Sided Cars.....	10
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#### YUEH HAN RAILWAY:

30 Ton Low Sided Cars.....	20
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There was also in process of construction for 1909 delivery, 24 cars for the I.R.N.C. and 52 cars for the Kalgan Road.

The prices charged for this work are said to defy competition, but despite this advantage, the cars are not accepted by all roads in China. As noted above in regard to the bridge works,



I.R.N.C.—TIENTSIN SETTLEMENT STATION





I.R.N.C.—SHOPS AT TONGSHAN

**TONGSHAN RAILWAY AND MINING COLLEGE.**—One important development of the Imperial Railways of North China is the Railway and Mining College at Tongshan. The following remarks on this institution from the Customs' Report of Tientsin are interesting:

"The aim of the Chinese, which has lately become increasingly manifest, to develop their country's resources and administer and operate its public conveniences, as far as possible, by the work of their own people, is one which must meet with sympathetic recognition so long as it does not lead to a too hasty cutting adrift from Foreign aid in the establishment and conduct of industries and undertakings, for which China is still a new field. The preparation of Chinese by sound technical education, abroad or at home, to fill, when thoroughly fitted, the more responsible positions in connexion with railways and mines is a work of the utmost importance; and the establishment at Tongshan, in March 1907, of a railway engineering and mining college for Chinese students is a step in this direction which should not go unrecorded. Previous to 1900 a college for instructing students in railway engineering had been in existence at Shan-hai-kwan; but the present institution is on a larger scale, and consists of a set of handsome red brick buildings with boarding accommodation for 160 students, who are, as regards discipline and domestic matters, controlled and superintended by a Chinese official, who is styled Proctor. Besides the dormitories and living-rooms for the students, the college compound contains numerous lecture rooms, as well as residences for the Foreign teaching staff. This staff consists of four professors or lecturers, all of whom are British. There are at present 120 students (ages, 18 to 35), and it is said that for the 40 vacancies shortly to be filled there are 700 candidates. This number will probably be reduced to 400 by the "qualifying knowledge of English" and "pass the doctor" tests. The keenness to enter the college thus shown must, however, perhaps not be made too much of, as the students are not only boarded and kept at the college free of expense, but are, besides, given pocket money, while a career in the railways or mines of China is practically assured them at the end of their college course. This course is a 'four years' one, and includes practical work in addition to lectures and examina-

tions. Football in the winter, and in the summer lawn tennis and swimming—this latter in a fine bath specially built within the college grounds,—are keenly taken part in by the students. The college owes its establishment to the forethought of H. E. Yuan Shih-kai, lately Viceroy of Chihli; and it is supported by the Imperial Railways of North China and the Chinese Engineering and Mining Company, the mining company contributing four-fourteenths of the expense, and the railway ten fourteenths. It is probable that this college will serve as a model for other similar institutions which will in time be started in other parts of China, as already during the past year various interested Chinese officials have paid it visits of inspection. A common drawback to the full efficiency of institutions of this kind in China is the tendency of students, in their haste to begin to earn a living, to leave them too soon and go into the world with only a smattering of knowledge or with a very in-



I.R.N.C.—SALOON CAR FOR THE IMPERIAL FAMILY BUILT AT THE TONGSHAN WORKS



I.R.N.C.—TIENTSIN NATIVE CITY STATION



I.R.N.C.—LANCHAU BRIDGE

adequate preparation for their work. It is hoped that the provision made for the maintenance of students while in college will minimise this tendency, so that the institution will send out men fully equipped for their work."

As in the case of the Imperial Maritime Customs, where Great Britain exacted a promise from China that as long as British trade predominates, the Inspector General shall be a British subject, so in the case of the Peking-Newchwang Loan Agreement, the financiers provided for British employees during the currency of the loan. The term of the loan is 45 years, repayable in 40 equal annual instalments commencing with the 6th year, and provision is made against the possibility of China redeeming or converting the loan.

Clause 6 of the Agreement stipulates that the Chief Engineer must be a British subject and the principal members of the railway staff





I.R.N.C.—ALONG THE WALLS OF THE TARTAR CITY, PEKING



I.R.N.C.—HSINMINFU STATION



I.R.N.C.—55' BAGGAGE AND MAIL CAR

and chief accountant must also be Europeans, and they can only be dismissed in the event of their misconduct or incompetency, and then only after consultation with the Chief Engineer. Provision is made for the appointment of competent Chinese to responsible positions.

The British principal of the Engineering College was engaged in 1905 under an agreement with the Railway which allowed of three months' notice on either side to terminate it. Without any reference to the Chief Engineer, the Directors of the Road last year gave the principal the usual 3 months' notice and a storm of criticism was the result. The dismissal of several other employers without consultation with the Chief Engineer occurred about the same time, and the feeling ran so

high that the British Secretary for Foreign Affairs was requested by a member of Parliament to make inquiries about the matter, and prevent persistent violation of the Loan Agreement.

Under the late regime of H. E. Chen-pi as head of the Railway Board, matters reached an unpleasant crisis, resulting in the resignation of Mr. Kinder after 30 years' distinguished services to China.

The reason for his resignation given by Mr. Kinder was simply that of age, and a desire to return to England. It is well known, however, that his resignation under the circumstances was inevitable. British interests contend that he was deprived of all real authority, objectionable contracts entered into without

his knowledge binding the railway for terms of years, and trustworthy English employes summarily dismissed without reference to him, so that his position became intolerable.

British opinion was greatly agitated over the apparent intention of the Chinese authorities to override the Loan Agreement, but the answer of China was well taken. All the provisions of the Loan were entered into to safeguard the annual repayment of principal and interest. When it became apparent that the enterprise was on such a solid financial basis that the annual profits of the road were sufficient to redeem the outstanding portion of the loan in three years, and that out of these surplus profits the construction of the Kalgan Road was undertaken, there were some legitimate

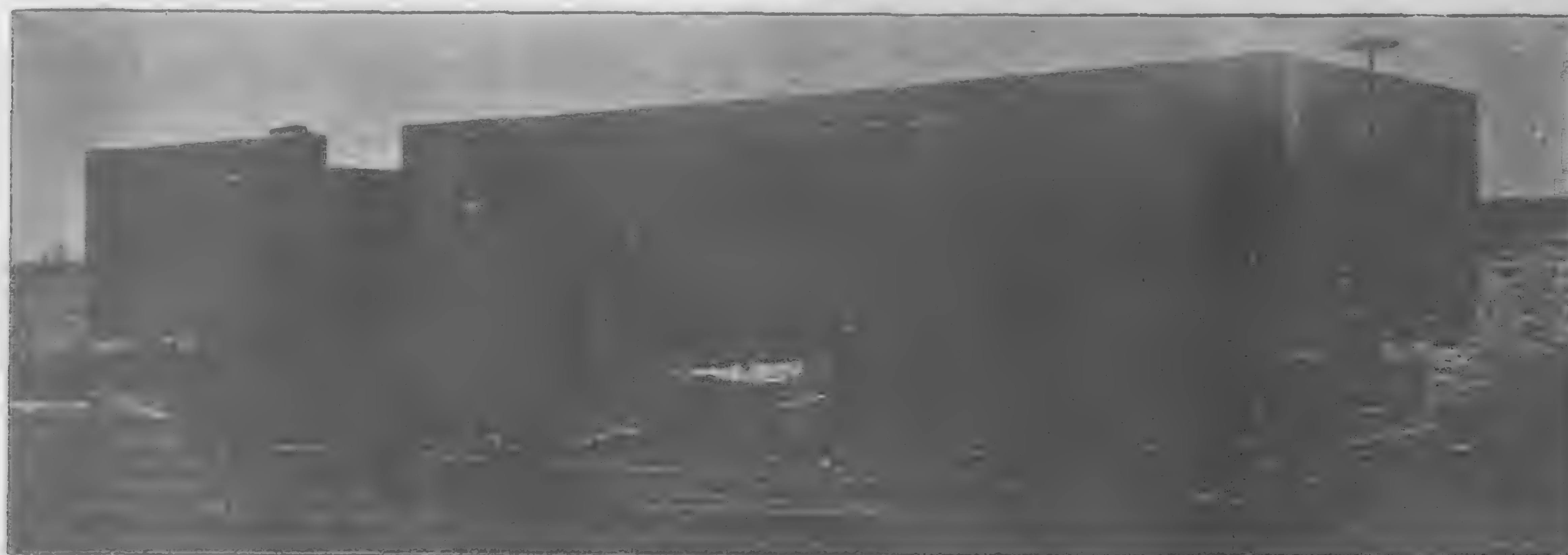


I.R.N.C.—STANDARD 30 TON COVERED GOODS WAGGON, BUILT AT THE TONGSHAN SHOPS,





I.R.N.C.—OLD PEKING STATION



I.R.N.C.—STANDARD 30 TON CAR

reasons for the Chinese exercising greater control of their own property.

As the Imperial Railways of North China are conceded by all authorities to rest on a firm financial basis, and an increase of profits may be expected rather than the reverse, and as only the provisions of the Agreement impede the present repayment of the Loan, the holding out by the British engineer to the strict letter of the agreement reflects a lack of confidence in China's ability to run the road, without his assistance. This inference is of course resented by the Chinese. Mr. Kinder's attitude in denying to them the right to exercise any voice in the control of the road unless sanctioned by him, deeply wounded their pride and only helped to make him intolerable to the authorities.

As the British Loan participation in the capital of the road only exceeds the Chinese share holdings by \$5,705,572 Mexican, there is little chance that they will intentionally weaken its financial standing or relax in efforts to increase profits. With these facts in mind any attempt by British interests to compel China to live up to the hard and fast provisions of the Loan, is accepted by the latter as an



I.R.N.C.—BUFFET AND DINING CAR BUILT AT TONGSHAN

attempt to denominate the railway regardless of China's equity.

The situation is of peculiar interest to all other nations. If China submits to the dictum of an aggressive British Director and Chief

Engineer or fails to assert her control over the property, British railway principles and standards will be forced on the Central Board for other roads in China, to justify the upkeep of Tongshan Car and Locomotive Works.



I.R.N.C.—30 TON LOW SIDE CAR, BUILT AT THE TONGSHAN WORKS





I.R.N.C.—STANDARD BOGIE LOCOMOTIVE—19"×24" CYL.

### CHINGWANGTAO

#### THE ONLY ICE FREE PORT OF NORTH CHINA

No article on Chinese Northern Railways would be complete without some reference to the port of Chingwangtao and its commercial and political significance. With the rivers and smaller harbors of North China frozen over for at least four months of the year, a serious handicap is placed on trade and the profitable operations of railways serving that part of the country. Tientsin, the great northern mart,

But Dairen is leased to Japan and is being developed to further the interests of the South Manchuria Railway and at the best it could not bring relief to Tientsin and the capital. The only natural ice free harbor on the Chihli Gulf is located at Chingwangtao, a place 10 miles west of Shanhi-kwan where the Great Wall terminates, 5 miles from Tangho, the station on the line of the Imperial Railways of North China, 165 miles from Tientsin, 251 miles from Peking and 272 miles from Mukden. At these distances from the trade centers of North China

bles as it was employed as the landing place for the foreign troops. Some initial steps were then undertaken to improve its facilities, but it was not until the Kaiping Mines were taken over by the Chinese Engineering & Mining Co. in 1901 that any serious attempt was made to make the port the real outlet for the winter trade of the Northern country. The necessity of having an assured outlet for the products of these mines compelled the Mining Company to purchase the land in the vicinity of the port and proceed to improve it with its own funds.



I.R.N.C.—STANDARD MOGUL ENGINE 16"×24" CYL—4' 6" WHEELS BUILT AT TONGSHAN WORKS

of China, the gate to Peking and outlet for the vast trade of the Northwest and Mongolia, is located on the Haiho, a river which at its best

is situated the only open port through which the country can be served for four months of the year. As late as 1898 its importance was

A pier of 350 ft. long capable of berthing several ships and a breakwater of over 1400 ft. was constructed, and suitable godowns and other buildings erected. A complete description of the work was given in the FAR EASTERN REVIEW of May 1906. Dredging operations have been completed, increasing the depth to 25 ft. alongside berths. The following is an extract from the Review of May 1906:

"The Chinese Engineering and Mining Company, Ltd., owns the land in the vicinity of the port, and has constructed a breakwater and pier for the accommodation of shipping. At present six berths are available, the approximate depths of water being as follows:—

	Low Water	High Water
Alongside pier (length 300')..	16'	21'
Alongside breakwater (length 1300').....	20'	25'
	13'	23'
	17'	22'
	16'	21'
	14'	19'



I.R.N.C.—30 TON OIL TANK CARS BUILT AT THE TONGSHAN WORKS

can only accommodate small coasting steamers with a draft of 14 to 15 feet. In 1908, out of a total number of 788 vessels entering the port at Taku, 511 went up the river to the Bund. For three or four months of the year Tientsin is closed to navigation by ice and trade comes to a standstill.

Newchwang, the natural outlet for the trade of Manchuria, located some miles inland on the banks of the Liao, is similarly situated. As soon as the freeze comes both of these important centres are closed for business. Dairen, the only ice free port on the Eastern half of the gulf, has superseded Newchwang as the distributing center for the trade of Manchuria.

recognized and it was opened to trade as a treaty port, although at the time it was only a little fishing village. Considerable prominence was given the new port during the Boxer trou-



I.R.N.C.—LOGGING WAGON



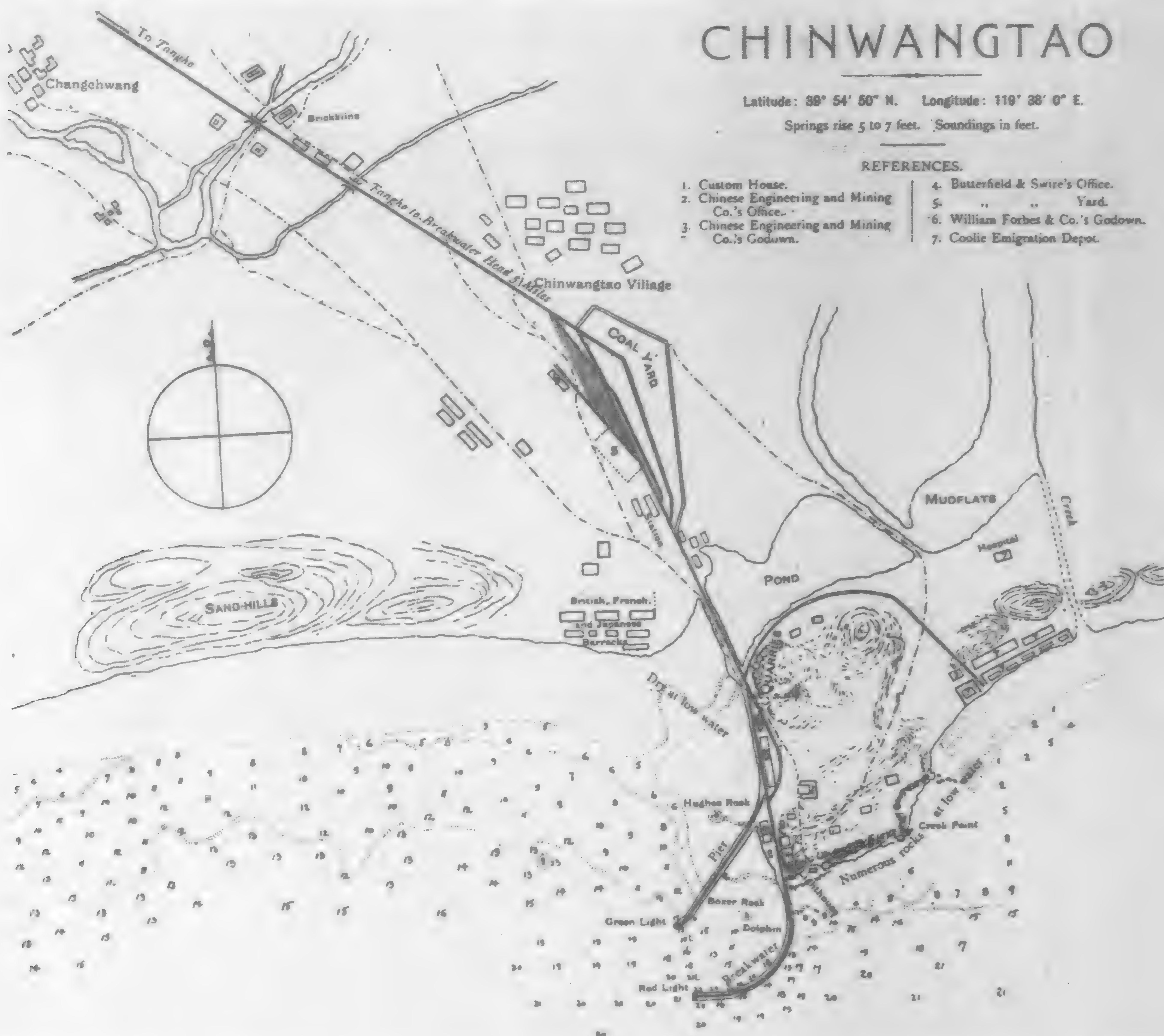
## CHINWANGTAO

Latitude: 39° 54' 50" N. Longitude: 119° 38' 0" E.

Springs rise 5 to 7 feet. Soundings in feet.

## REFERENCES.

- |   |                                   |
|---|-----------------------------------|
| 1. Custom House.                                | 4. Butterfield & Swire's Office.  |
| 2. Chinese Engineering and Mining Co.'s Office. | 5. " " Yard.                      |
| 3. Chinese Engineering and Mining Co.'s Godown. | 6. William Forbes & Co.'s Godown. |
|   | 7. Coolie Emigration Depot.       |



"Dredging operations are in progress with a view to increase the depth to 25' alongside berths. There is good sheltered anchorage in The Roads.

"The company's branch line to Tongho Junction connects the pier and breakwater with the main trunk line of the Imperial Railways of North China (Peking to Newchwang) and trains from the harbor are run to connect with all mail trains. Cargo is loaded direct from the ship's holds on to cars and *vice versa* so that a minimum of handling and consequent freedom from loss and damage are ensured.

"Chinwangtao is the natural distributing centre for the Northwest part of the great province of Chihli. The facilities, resulting from the company's liberal expenditure of capital, for the rapid and economical handling of cargo, have caused Chinwangtao to become also a formidable rival for the trade hitherto shipped through Tongku for Tientsin. A considerable portion of this trade throughout the year now passes through Chinwangtao, whilst during three months of winter, when the Pei-ho River is closed to navigation, the whole trade of Tientsin is carried on without interruption through this channel.

"Godown accommodation and covered storage are obtainable.

"The facilities for quick despatch may be gauged from the fact that a steamer was recently loaded with 2400 tons of coal in 13 hrs. There are three steam cranes to lift up to five tons, and arrangements can be made to lift weights of 15 tons. The expense, delay, and damage entailed by the lighterage of steamers which must be encountered at Taku Bar are here entirely obviated.

"The great increase of trade year by year

has induced the Imperial Maritime Customs to specially erect a fine custom house with a deputy commissioner in charge, and to open a Haikwan Bank for the convenience of local consignees."

However, in spite of the excellent advantages afforded by the port, at an expense of over \$1,100.00 gold, Chingwangtao has not developed according to expectations. As a coal port and a winter jetty for the north of China, it still maintains its supremacy, but the Tientsin merchants fail to avail themselves of its advantages for general trade in winter, preferring to rush cargoes in and out of Tientsin, just before the freeze and after the thaw. In 1908, 176 steamers entered and cleared from the port representing a tonnage of 279,095. The exports from the port are largely the products of the Mining Company, which included, in 1908, 211,565 tons of coal, and 1,623,560 fire brick.

It would appear reasonable to assume that the Chinese Government would lend every encouragement towards the development of this port, as an offset against Dalny. Newchwang's trade prominence in Manchuria has been gradually won over by the Japanese port, and her merchants are raising the cry of discrimination in freight rates. The Chinese Government, however, instead of assisting in developing one good central ice-free port for the service of the entire north, is bent on creating another which will be the terminus of the Imperial Railways for North China, and the Chinese outlet for the grain trade of Manchuria. To this end a new port for Manchuria has been proposed and is actually being surveyed at Hulutao 7 miles from Lienshan, a station on the Imperial Railways of North China, which is 94 miles nearer to Moukden than Chinwangtao and 70 miles

nearer than Dairen. The harbor is situated near a fertile grain-growing district, and in the neighborhood an exceedingly good quality of coal is found, at present only worked by Chinese methods. This winter has not been severe enough to test whether the proposed port is free from ice, but the natives of the place state that it is. The fact that there is 30 feet of water at low tide and a rise of 10 feet at spring tides almost confines the natives' statement in itself. A breakwater will have to be built as a protection to the south-west winds of summer, but otherwise the harbor is said to be naturally complete. Besides being a port which would accommodate ships of great size and draught, the establishment of Hulutao would be obviously of great advantage to the Chinese, as it would enable them to have an excellent gateway to Manchuria, open all the year and under their own control. It would undoubtedly deprive Chinwangtao of its extra-mural trade, but would hardly affect its trade in the province of Chihli.

The construction of the proposed Chinchowfu Tsitsihar-Aigun line by China, tapping the trade of Eastern Mongolia, and the demand for an ice free port under Chinese jurisdiction for the regions served by the Liao River, and the Imperial Railways of North China, compels the construction of such a port as a commercial and political necessity for China. If as reported there are 30 feet of water at low tide, its advantages over Chinwangtao are obvious. However, it will be some years before the volume of trade will justify the enormous expense attached to the improvement of the port of Hulutao, and if the Government would extend more encouragement to Chinwangtao the proposed port would be superfluous.



# SHANGHAI-HANGCHOW-NINGPO RAILWAY

## KIANGSU RAILWAY



KIANGSU RAILWAY: THE CHINESE ENGINEERS WHO BUILT THE ROAD FOR LESS THAN \$20,000, GOLD, PER MILE (3rd from right) MR. HSU WEN CHEOUNG, Chief Engineer.—(1st from right) MR. CHU, Divisional Engineer.—(4th from right) H. E. JEME TIEN-YU, the builder of the Kalgan Railway and Consulting Engineer to the Kiangsu line.

Ten years ago, when the Battle of Concessions was at its height in Peking, British interests were fully alive to the great value of a line connecting Shanghai with Hangchow and thence to Ningpo. In April, 1898, the organization of the British and Chinese Corporation had been effected by a combination of the leading British financial and commercial firms in China—the Hongkong & Shanghai Bank, and Jardine, Matheson & Co. One of the first projects engaging their special attention was the securing of a concession for this line so as to preserve British commercial preponderance at the mouth of the Great Yangtze valley. This projected road, running through one of the richest and most populous districts of China, would open up and develop the country, stimulate similar enterprises, and prove a most profitable undertaking. At this early stage of railway development in China many British financiers endeavored to secure participation in concessions but competition gradually disappeared and British official support exclusively extended to the most representative and influential syndicate. In 1898, the preliminary concession for the Shanghai-Nanking Railway was secured for the British and Chinese Corporation. Shortly after, the Peking, Syndicate agreement was concluded and overtures made for the construction of the Peking-Hankow line. China's breach of faith in ratifying the agreement with Belgium was used as the occasion of a formal demand for compensatory advantages to Great

Britain. China, complying with this demand, consented on September 14, 1908, that the following railroads would be constructed by British interests on terms equal in advantage to those secured by Belgium:

1. Canton to Kowloon.
2. Shanghai to Nanking.
3. Chinkiang to Sinyang.
4. Hangchow to Soochow with extension to Ningpo, if necessary.

The British & Chinese Corporation, after many difficulties, succeeded in finally securing the Chinese Government agreement for the issue of bonds for the Shanghai-Nanking Road and the Kowloon-Canton Road and then turned their attention to the Soochow-Hangchow Ningpo line. But, by the time the British Corporation found a favorable opportunity for approaching this third problem, several years had elapsed and in the meanwhile two native companies had been organized for the construction and operation of the line between Shanghai and Hangchow. That part of the route between Shanghai and Fenching in the province of Kiangsu was taken up by the Kiangsu Railway Co., and the line from Fenching to Hangchow in Chekiang Province by a company under the style of the Chekiang Railway Co. An Imperial Edict of September 23rd, 1905, complicated the rights secured by the British Company by transferring the rights of construction to a provincial railway bureau and under this authority the work of the two

companies was commenced with the official approval of the provincial governors. To the remonstrance of the British company to this infringement of their rights, the Chinese government promised to equitably adjust the matter, this promise terminating in China's agreeing to issue a loan of £1,500,000 through the British & Chinese Corporation for the construction expenses of the road on terms similar to the Tientsin-Pukow issue. This loan was strenuously opposed by the native companies through the provincial governors on the following grounds:

1.—As the British concessionaires did not do anything during the ten years after the conclusion of the preliminary agreement in 1897, the concession has now lapsed.

2.—In June, 1903, H. E. Sheng Kung-pao wrote officially to Mr. Brennan to the effect that if the concessionaires failed to commence work within six months then the preliminary agreement would be cancelled, but no reply was received from the representative nor was work begun at that time.

3.—The Chinese Railway Companies of Kiangsu and Chekiang have no need to float a loan from the said Corporation as was done for the proposed Tientsin-Chekiang trunk line for they have funds to build the Soo-Hang Ning railway themselves without assistance.

4.—The natives of Kiangsu and Chekiang obtained Imperial permission last year to construct the railway with purely Chinese mercantile funds.



KIANGSU RAILWAY:—ZIA-TANG BRIDGE





KIANGSU RAILWAY: OPENING DAY—AMERICAN LOCOMOTIVE AND CARS

5.—The Chinese Railway Company at Hangchow has now completed the construction of the short railway from the city to Kianghu (i. e. along the Chient'ang river) and opened it to traffic as part of the section in Chekiang, while the company at Soochow is laying rails for the Shanghai-Sungkiang portion and preparations are being made to push them forward as soon as possible.

6.—Although the proposed loan of £1,500,000 is to be guaranteed by the Provincial Governments of Kiangsu and Chekiang, yet, as both capital and interest will be repaid out of the profits of the railway in future, it is the same as placing it on mortgage.

7.—As the construction of railways in China with Chinese money is an important matter, the Peking Government should exert itself to retain full control, otherwise the consequences will be greatly detrimental to both the country and the people.

Great Britain, however, held China to the letter of the agreement that these roads were to be constructed by the British & Chinese Corporation, with British capital, preference to British goods, and supervision by British engineers.

Peking, confronted by the opposition of the provinces against interference in their internal affairs, and on the other hand, by the pressure of the British Government to compel it to live

up to its agreement, true to its traditional policy, temporized, and instead of commanding obedience from the provinces, gave in to outside pressure and authorized the Loan as the easiest way out of an unpleasant dilemma.

The loan was made under the following conditions:—

Loan of £1,500,000 at five per cent interest per annum issued at 93.

Loan will be guaranteed by the Provincial Governments of Kiangsu and Chekiang proportionately instead of by line in question.

The surplus of the revenue of the Imperial Railway of North China is also placed as security for the loan.

The name of the railway is changed to Shanghai-Hangchow-Ningpo Railway from the Soochow-Hangchow-Ningpo Railway.

The loan should be commenced to be redeemed after ten years and finally redeemed within 30 years, but after the eleventh year China may redeem the whole of the loan, but in that case two pounds ten shillings will be added per £100.

The chief engineer shall be an Englishman, to be engaged by China herself, on the condition that he must be recognized by the corporation.

The line will be built and controlled by the Chinese.

In case of buying foreign materials the British and Chinese Corporation will supply the same with five per cent commission, and the

sum of £35,000 will be paid to the Corporation in two instalments and the Corporation will not audit the accounts.

The sum of £60,000 will also be paid out of the profits from the sale of bonds.

The natives of the two provinces shall be permitted to purchase the shares under similar conditions as foreigners.

The funds which have already been spent for the construction of those sections of this line by the people of these two provinces are to be added to the capital over and above the £1,500,000.

Interest will be paid out of the net profits of the line in future.

The flotation of this loan placed the Chinese Government in a peculiarly vulnerable position, as the agreement was entered into with the full knowledge beforehand that the proceeds could not be applied to the purpose for which they were intended, owing to the decided opposition of the provincial companies supported by a unanimous public sentiment. A deadlock was inevitable. The railway companies refused to use any part of the loan, or purchase materials through the British & Chinese Corporation. After considerable delays, the following compromise was entered into.

The Kiangsu and the Chekiang Railway Companies are, according to an Imperial Decree, both private commercial companies and will



KIANGSU RAILWAY: STATION OF SHANGHAI ON OPENING DAY—AMERICAN (HARLAN &amp; HOLLINGSWORTH) CARS





KIANGSU RAILWAY: OFFICES AND STATION AT SHANGHAI



KIANGSU RAILWAY: LOCOMOTIVE SHED AND WATER TANK AT SHANGHAI



KIANGSU RAILWAY: TEMPORARY CAR ERECTING SHED



KIANGSU RAILWAY: SUNGKIANGFU STATION

be treated the same as other railway companies which are private commercial companies. The said two Companies will borrow from the Board of Communications a sum of about Taels 10,000,000, and at least Taels 7,500,000,

which will be paid by the Board in two instalments, namely within seven months from the 6th March 1908 the sum of Taels 8,000,000 and the rest within twelve months from that date. This may be postponed till eighteen

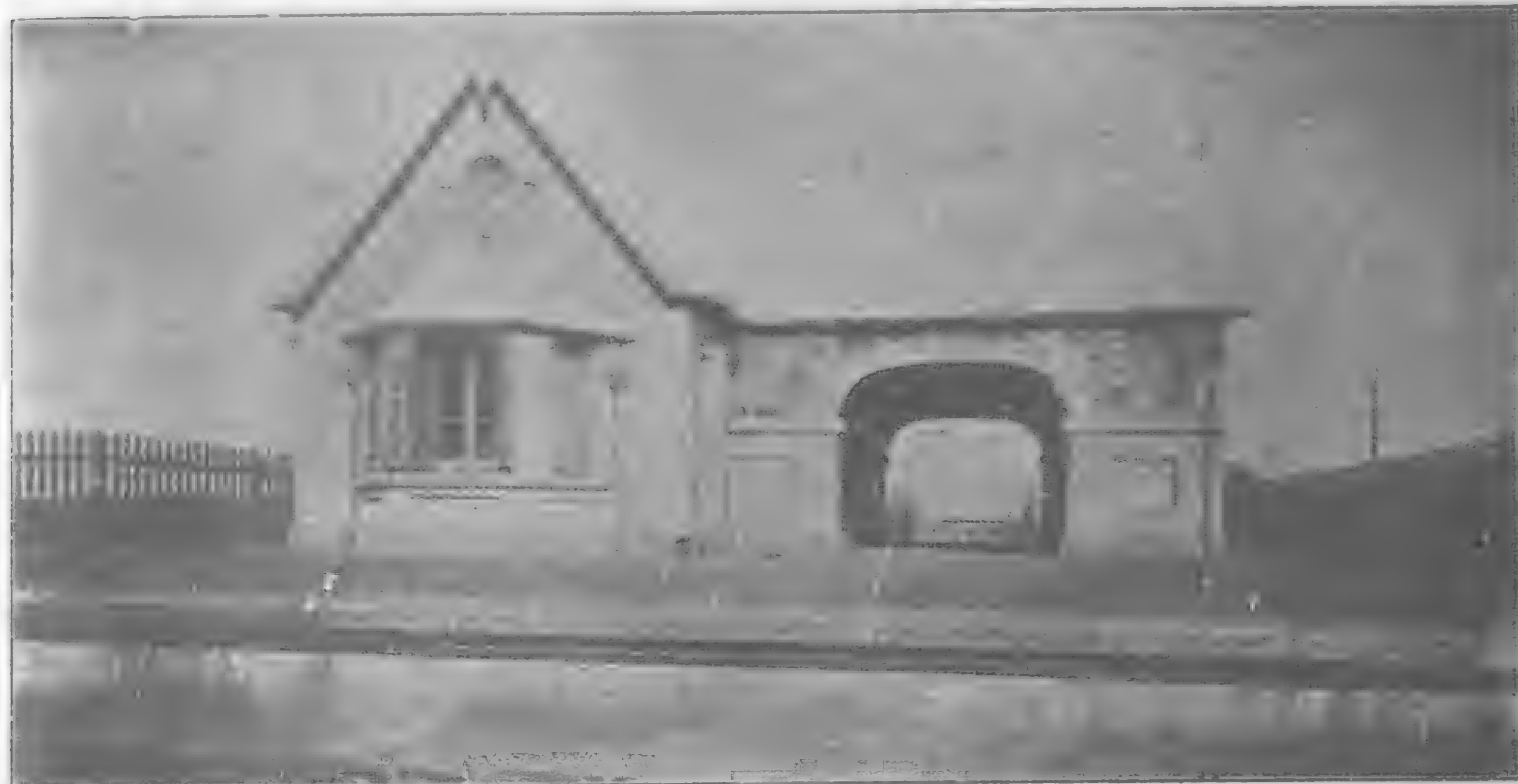
months but not more than twenty four months. If the Board can not comply with this arrangement the agreement will be cancelled and the railway companies will repay the sum already in hands within six months and the same shall



not be delayed more than twelve months. The British and Chinese Corporation has nothing to do with the Companies and shall not interfere with them. The sum needed by the railway will always be received by the Companies from the Board after duly stating the items for which the sum is needed. In case more than Taels 200,000 are needed the same should be referred to the Board at least ten days previously. The companies will pay certain interest annually on 30th June and 31st December. When there is any surplus in the revenue of the railways the royalty of one twentieth of the same will be paid to the government but for all the expenses regarding the loan from the British and Chinese Corporation the Board will be solely responsible. The railway companies are simply responsible for the repayment of the principal and interest but have no responsibility to give securities. The term of the loan is for thirty years and in the first ten years the principal will not be repaid but the same will be commenced to be repaid from the eleventh year. After the eleventh year if the railway companies wish to repay at one time or at shorter intervals six months notice should be given and when this is repaid the agreement will be cancelled. When the work



KIANGSU RAILWAY: STATION



KIANGSU RAILWAY: FENGCHING STATION

of the railways is complete the two companies will hand the interest for the last half year six months before to the Bank of Communications at Shanghai and after the last half of the tenth year the portion of the principal and interests to be paid should be deposited at the bank six months before and the interest on the same will be paid by the said Bank. The right of building and control of the Shanghai-Hangchow-Ningpo Railway is solely in the hands of the Kiangsu and the Chekiang Railway Companies and the Board will not interfere with the same. The Director General of the line will by order of the railway companies within six months of the date of this arrangement select an engineer-in-chief in England or amongst

the railway engineers in the employ of the Imperial Railway of China. Such engineer-in-chief should be under the command of the Director-General or his deputy. The contract with such engineer-in-chief will be made with the said Director General and the same will be the case in employing other railway experts. In case there is any dispute in connection with such contract the Board will not interfere but merely the contract will be the evidence of the case. It is always provided however that while the loan is in existence a British Engineer-in-Chief will be employed. In case of buying materials through the British and Chinese Corporation the Board of Communications will arrange for commission and therefore the rail-



KIANGSU RAILWAY: 3RD CLASS STATION



KIANGSU RAILWAY: STATION

way companies need not pay such commission. In case the railway companies will not buy materials through the said corporation the commission should be paid by the railway companies. The Bank of Communications will be the Bank of the Board and the funds should pass through the hands of the Bank.

The Kiangsu Railway Company was organized with a capital of \$3,000,000 Mexican to operate the road between Shanghai and Fengchin, a distance of 38 miles. The Chekiang Railway Co. operating the road from Fengchin to Hangchow, a distance of 78 miles, was originally organized with a capital of \$5,000,000, all paid up. In June, 1908, in order to provide funds for the extension to Ningpo and the construction of the Chien Tang Bridge at Hangchow,





KIANGSU RAILWAY: TUNG-HUA STATION

an increase of capital of \$15,000,000 was authorized, to be paid in 5 yearly instalments. Only Chinese were permitted to subscribe or hold stock and the number of shareholders is reported to be over 53,000, about 40,000 of whom are coolies, farmers and small tradesmen, some holding as low as \$5.00 in shares. The first call on the new issue of \$3,000,000 is reported to have been paid in. Up to the recent completion of the two roads, both companies had ample funds at their disposal without recourse to the British loan to carry out all their work and purchase all materials. Of the £1,500,000 loan, the Board of Communications has so far allotted Taels 500,000 to the two companies at 5½% interest, charging 7% of the amount as premium. Although the loan provided for the employment of a British engineer and the purchasing of the materials through the British and Chinese Corporation, the Chekiang Ry. Co. declined to avail themselves of the purchasing agents' services and in consequence has had to pay the sum of \$250,000 Mex. in lieu of the 5% commission stipulated in the Loan Agreement. The British engineer appointed to the Chekiang line construction did not report for duty until the 78 mile section of the road terminating at Hangchow was completed by Chinese labor and capital. Under a new agreement he will be retained to super-



KIANGSU RAILWAY: ENGINEER'S STAFF



KIANGSU RAILWAY: A WELL-BALLASTED ROADBED

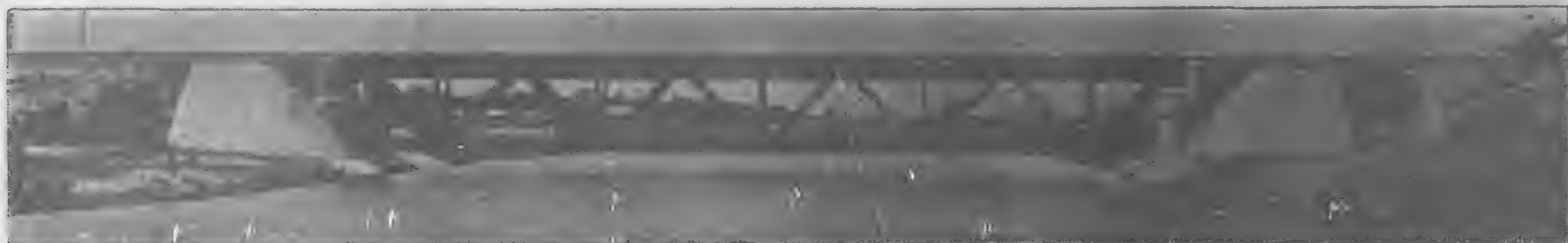
intend the construction of the extension from Hangchow to Ningpo at a salary of \$16,000 gold per annum.

The Chekiang Company has so far been allotted about \$450,000 Mexican of the British Loan but, not needing it, has loaned the money to Chinese Banks at a higher rate of interest than that exacted from them by the Yuchuanpu (Board of Communications). The president and vice president of this line receive no salary and the other officials are paid ridiculous low

wages. Mr. T. C. Pu, the secretary and chief engineer under whom the road has been constructed, is a graduate of the Civil Engineering School of the University of California, Class of 1907. Although fresh from college and with little practical experience he is quite capable. His salary as chief engineer is \$2700 gold per annum. With plenty of funds, there has been comparatively little waste in construction, although the management is open to some criticism for the lack of sound judgment in

purchasing supplies. Locomotive engineers are paid from \$60 to \$80 Mex. per mensem, station masters, \$18 to \$36, track foreman \$9.40, and laborers about \$8.00. The actual cost has been less than \$26,000 Gold per mile including cost of earthwork, tracks, rolling stock, stations and all charges. The Chekiang Line has a total of 144 steel girder bridges, supported on concrete abutments, and 157 culverts crossing small canals and ditches. All of these girders were purchased from the American Bridge Co. of New York through their local agents. The longest bridge on this road is a 60 ft. span with an average of 45 ft. The country traversed by both the Chekiang and Kiangsu Railways is a net work of canals and waterways, the natural highways of commerce and trade in this low lying section. The closing or narrowing of those streams by cofferdams to the detriment of the great junk and river traffic was prohibited by the authorities so in many instances the railway engineer put into practice the old scheme of building one abutment at the water's edge, the other on dry land to one side, and then after completion, the shallow canal was diverted from its old channel to the new ones between the abutments. There is nothing remarkable about this practice although the *London Times* Correspondent employed it as an argument to criticize the professional ability and capacity of the engineer. The same practice was resorted to in the construction of the Shanghai-Nanking Railway. The correspondent of the *London Times* says: "Where there was difficulty in bridging a stream, the Chinese built the bridge on dry land and then dug a canal and diverted the waterway under the bridge, both the entrance





KIANGSU RAILWAY: TYPES OF THE MUCH CRITICISED BRIDGE WORK



KIANGSU RAILWAY: A GRADE CROSSING





KIANGSU RAILWAY: TYPES OF BRIDGES

to the diversion and the exit from it being literally at right angles to the natural direction of the stream." The mere fact that such practice could be resorted to is an indication of the

innocence and sluggishness of the water, and as nearly all are tidal canals, it rather reflects on the good judgment of the engineer than otherwise as the best method of keeping the

narrow channels open to junk traffic during the construction of the road.

The ties on both lines were purchased in Japan, and while not of the highest quality,



# CHEKIANG RAILWAY ROLLING STOCK



GERMAN-"BORSIG"-LOCOMOTIVES



BRITISH SADDLE TANK LOCOMOTIVE: HUDSWELL CLARK & CO., MFGRS., SOLD THROUGH MESSRS. BRIGHTEN, MALCOLM & CO., LTD.

are of standard sizes 8 ft.  $\times$  8"  $\times$  6" spaced 2 ft. 4 in. between centers. These ties are estimated to have a life of 7 years under conditions existing in this section of China. They cost delivered \$1.05 Mexican each. The ballast is limestone and sandstone secured from quarries near Hangchow with rail connections with the main line. The roadbed is ballasted for a width of 10 feet and is 6 inches deep. The cost delivered at the track was about 60 cents Mexican or 25 cents per cubic yard.

The entire line from Shanghai to Hangchow is 116 miles long. The Chekiang section has in addition 36 miles of sidings. The line is single track, standard gauge and the rails of 75 lbs. to the yard, of Standard Section, 10 meters long, laid with even joints. These were manufactured at the Hanyang Iron & Steel Works, opposite Hankow.

The Chekiang Railway has 15 depots and the Kiangsu line 10. The stations on the former line are not all completed and in some instances only temporary matsheds are in use. Wood has been employed for platform sheds. On



BRITISH SECOND & THIRD CLASS PASSENGER COACHES, FROM RENSCHAW & CO., SUPPLIED THROUGH MESSRS. VON DÜRRING, WIBEL & CO.





CHEKIANG RAILWAY: PULLMAN 1ST CLASS PASSENGER CARS SUPPLIED THROUGH MESSRS. MITSUI & CO.



CHEKIANG RAILWAY: BRITISH AND AMERICAN CARS

the Kiangsu Line, commencing with the fine commodious central depot and general offices at Shanghai, all the stations are of brick or stone, attractively and substantially built.

The Kiangsu Line has 48 bridges, exclusive of culverts, some stone arches and some steel girder type. The longest bridge is at Ziatang with a length of 440 ft. in two spans. There are also bridges at Yuen Zia-ching, 400 ft. in span, Lu Tienwan, 200 ft. in span, and Pei Ya



CHEKIANG RAILWAY: 3RD CLASS STATION



FLAT CAR ON CHEKIANG RAILWAY

hing, 100 feet in span. The whole capital used did not exceed Tls. 2,000,000, of which Zia Tang required the greater part, its construction being most difficult. It is a branch of the Whangpoo River, its current very rapid and its depth over 40 ft.

On the Kiangsu Road the rolling stock is American. The first, second and third class cars were manufactured by the Harlan & Hollingsworth Co. of Wilmington, Del., according to specifications submitted. This equipment was sold through the firm of Carlowitz & Co. These cars and trucks were ordered from America the same time as the engines. The latter, from the American Locomotive Company, were ordered to meet the requirements of the Chinese Railway Board's rule that the height from the top of the rail to the center of the drawbar or coupling should be 3' 7". The cars were ordered according to American practice which stipulates a height of 10 inches less than the

above. To the American car and American truck has been fitted the standard Chinese wheel, 42" in diameter, or 9 inches more than the American standard. To give clearance to this wheel the car bodies have been blocked up at the kingbolt and on the sides about 9 inches. The effect is a botch and of course every one shifts the trouble on the poor American rolling stock when the real cause lies with those who ordered the material.

The Chekiang Line is a menagerie of rolling stock. Nine different types from various makers are doing duty on this section. Disgruntled critics say this variegated assortment of cars is due to the fact that each of the directors has the right to order in turn the material for the road and does so according to his fancy and ideas of "official commission." The officials of the road answer that they knew what they were doing and purposely collected the various types to try them out and deter-

mine for themselves just what type of cars and locomotives are best suited for their requirements. This equipment will surely assist them in arriving at a fair decision of what their future requirements will be, for they have been strictly impartial in bestowing their orders. We find, at first, two Borsig German Tank Locomotives purchased through the firm of Von Duering Wibel & Co. of Shanghai, at an approximate cost of \$8,200 gold each, then 6 British Tank Locomotives from the Hudswell Clark factory were secured through the firm of Brighten, Malcolm & Co. at \$9,720 gold each, and lastly 4 Mogul type engines from the American Locomotive Co. were purchased at \$13,600 each through the firm of Mitsui & Co. Passenger coaches in operation number 41. Ten of these cars were built by Renshaw & Co. of England and 11 more have recently been added from the Pullman Works at Chicago. Of 203 freight cars, some are from Orenstein



KIANGSU RAILWAY: AMERICAN (HARLAN & HOLLINGSWORTH) PASSENGER CARS



CHEKIANG RAILWAY: AMERICAN BOX CARS (AMERICAN CAR AND FOUNDRY CO.)





CHEKIANG RAILWAY: INTERIOR OF 3RD CLASS COACH, BUILT BY THE PULLMAN CO. OF CHICAGO



CHEKIANG RAILWAY: FIRST CLASS PASSENGER COACH, BUILT BY THE PULLMAN CO. OF CHICAGO

& Koppel, some from Renshaw, some from Tongshan, and the rest from the American Car & Foundry Co. The Company is now constructing cars at its own shops at Hangchow where four have already been turned out and there are eight building.

It is too early to direct criticisms against the management for purchasing the various types of rolling stock. At present all cars and locomotives look alike to the average Chinese Railway official. Every manufacturer's agent in the world is telling him that his products are the best and to beware of the other fellow. Quality is subordinated to cost and commission, and if they take it into their heads to determine for themselves what they want in the future, promiscuous purchases may be justified at this time. In three years from now the Chekiang Railway Directors will have become educated through actual experience and know better what they desire and if not trammeled by the provisions of a Loan Agreement they will know what cars to order, be they British, German or American. Until such time, it is unfair to criticise their rolling stock, however poor some of it undoubtedly is. They got what they ordered and paid for and no more. The chief engineers of both the Kiangsu

and Chekiang lines already appreciate the errors committed and hope to do away with them in future.

On the Chekiang Railway there are no grades of more than 2-10 of 1%, and no curves of more than 3 degrees: labor is the cheapest in the world, and there is only about \$2,200,000 gold invested in the property. At the outset, the passenger receipts alone between Kashing and Hangchow, a distance of 60 miles, averaged \$3000 Mexican per diem. With the road completed and through service as now obtains from Shanghai to Hangchow these receipts should ascend to \$4000 per day, or a total of \$550,000 per annum. Allowing the high rate in China of 30% for operating expenses and charges, this road will pay at least 7% on its invested capital the first year.

Taking everything into consideration there is every reason to believe that in ten years the road will prove as remunerative an enterprise as the Imperial Railways of North China. The extension of the road to Ningpo is now occupying the attention of the officials, but progress is checked until a solution is found to the present conflict of authority between the Central Government and the provincial gentry. Peking has attempted a solution of the tangle by ap-

pointing the director of the Chekiang Railway to the post of Provincial Judge of Yunnan. With him out of the way, the Central Government feels that the situation will clear, but the gentry of the Province have protested against his transfer, and the end is still far off.

This Railway Company has just received a consignment of freight cars from the firm of Orenstein & Koppel of Berlin. These cars which are built for a 35-ton load differ from the cars previously used on this line by their having steel plate bogies and steel plate springs instead of the Diamond Arch Bar Bogie with coil springs.

This new type, though possibly more expensive, is a very substantially constructed car. Another large order of box cars from the American Car & Foundry Co. of New York, placed through Mitsui & Co., are also in operation. In view of the recent somewhat unfavorable comments on the rolling stock employed on this railway, these new orders indicate that the Railway authorities are perfectly alive to the necessity of adopting improvements. Eventually, when the new equipment is working talk about inferior rolling stock will gradually cease.



KIANGSU RAILWAY: RIVER TERMINUS NEAR KIANGNAN



# SWATOW-CHAOCHOWFU RAILWAY

The Chao Chow & Swatow Railway Co., Ltd., is the first distinctly Chinese railway organization which has succeeded in building and operating its road. The necessary concession was granted in 1903 to one Chang Yu-nan, a native merchant who made his fortune in Java, and work commenced in 1904. The Company is registered under the Hongkong ordinances, and a director, Mr. Ng Li Hing, resides in that colony and looks after its interests there. The head office is located on Chee On St. in Swatow. It is capitalized at \$2,000,000 Mex.

The construction work was carried out by Japanese engineers, under the direction of the well known firm of Mitui Bussan Kaisha. The road was opened to traffic throughout the entire length on the 16th of November 1906.

It is almost 24 miles in length, and has four stations besides the terminals. The gradients are low, and curves are comparatively few. Throughout its whole course the line is practically level, with no deep cuttings. The only bridge of any size spans the north, or Ampou branch of the Han river, about two miles from Swatow. The greatest difficulty encountered was the number of small streams and water outlets which has to be spanned by culverts.



SWATOW-CHAOCHOWFU RAILWAY—OPENING CEREMONIES



SWATOW-CHAOCHOWFU RAILWAY.—SWATOW STATION



I. R. N. C.—LANCHAU BRIDGE

The embankment is mainly composed of field mud dug up close to the line, and ballast is sparingly used. Japan hardwood sawed ties and American steel rails, angle bars, and spikes were used. The three 54-ton locomotives, constituting the motive power, are of American manufacture. They bear, however, a conspicuous name plate in English and Chinese, setting forth the firm that sold them. The coaches, of which the road has twenty-four, are built on the corridor plan, and were constructed in Japan. They will each seat fifty passengers. The first class coaches are fitted with seats that imitate the American patterns, and are upholstered in imitation leather. The second class coaches have wooden benches. The couplers are of the American type. A standard train consists of fourteen coaches and a guard's van. The latter is the only one provided with brakes, the American air brake on the locomotive being relied on to handle the train. Forty-eight small freight cars complete the list of the company's rolling stock. This road is the first in China to be built with Chinese capital.

Previous to the formal opening of the road the trains had been running for eight days (three a day each way), and the daily average of pas-



SWATOW-CHAOCHOWFU RAILWAY.—YARDS AT SWATOW





SWATOW-CHAOCHOWFU RAILWAY.—STATION AT SWATOW



SWATOW-CHAOCHOWFU RAILWAY.—LOCOMOTIVE SHED AND SHOPS



SWATOW-CHAOCHOWFU RAILWAY.—FIRST AND SECOND CLASS PASSENGER CARS



SWATOW-CHAOCHOWFU RAILWAY.—AMERICAN SADDLE TANK LOCOMOTIVE





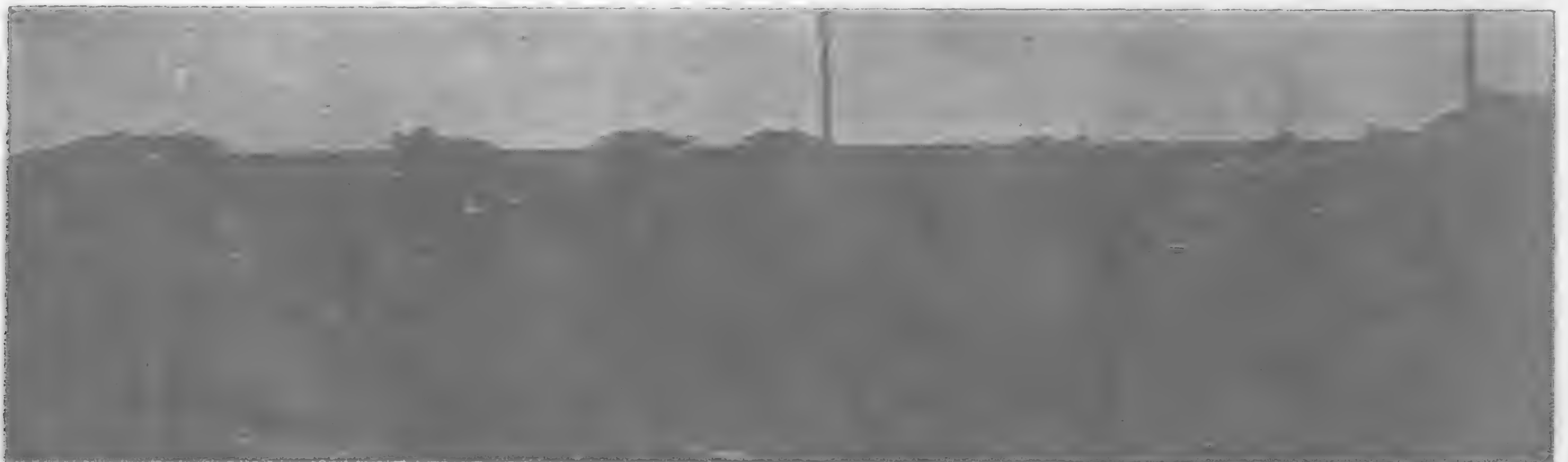
SWATOW-CHAOCHOWFU RAILWAY.—YARD AT SWATOW



SWATOW-CHAOCHOWFU RAILWAY.—YARD AT SWATOW



SWATOW-CHAOCHOWFU RAILWAY.—GIRDER BRIDGE ON LINE



SWATOW-CHAOCHOWFU RAILWAY.—GIRDER BRIDGE ON LINE

sengers carried was 2,000. The fares per ride are 67 cents gold for first class, and 27 cents for second class. The 30 miles are made in about one hour and thirty minutes.

The engineers and conductors and the train dispatcher are Japanese, but the ticket collectors on the trains and all other employees are Chinese. The dispatching is done by telephone.

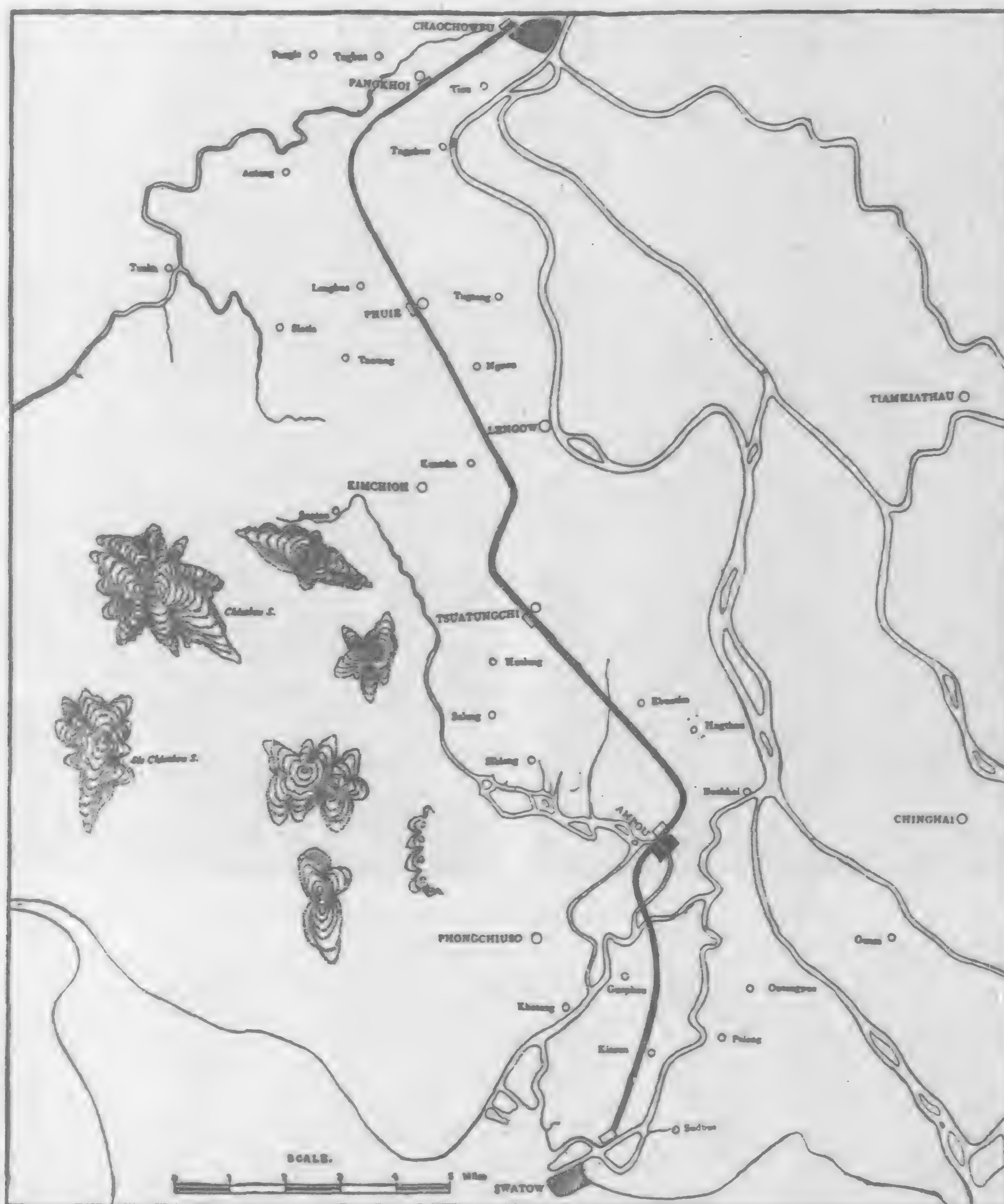
The completion of this line caused a great inflation of local land values, but prices are now

again normal. A considerable number of Japanese experts are still employed on the railway, and it is due to their efforts that the line is run in a practical manner, according due consideration to the wants of the native passengers.

It was proposed to extend the line to Iki, the object being to build up a freight carrying trade from that district. It was also intended to bring the line direct to the harbour shore

at Swatow, but owing to the great expense of filling in the foreshore, the project has been dropped for the time being. Steps have been taken to survey the proposed Whampoa-Amoy line, and the country about Hoifung, Lukfung, Wallai, Puning and west of Kityang, has also been surveyed. It is intended to bring the line east of Chaochowfu to Huangkang on the coast, and from there to Chaoang and Amoy.





*Reprinted from the Far Eastern Review*

### MAP OF THE SWATOW-CHAOCHOW-FU RAILWAY



SWATOW-CHAOCHOW-FU RAILWAY.  
—INTERIOR OF FIRST CLASS COACH

SWATOW-CHAOCHOW-FU RAILWAY.—TYPE OF BOX CAR SUPPLIED BY MITSUBISHI  
BUSSAN KAISHA



# THE SUNNING RAILWAY

This line, which when completed will be approximately 55 miles in length, and connect Yung Yik, a point on Sunchong Creek, about seven miles from the treaty port of Kong Moon (situated 88 miles from Hongkong), with

The first section opened for traffic was fifteen miles in length and connected Kung Yik with Sunning City. The formal opening of this section took place on January 6th, 1908. In June of the present year the line was opened

tinental type with coal bunkers, saddle tank, short wheel base and outside connected drivers. One of these is 40 tons and two of 25 tons each. The road is equipped with eight first class coaches of American corridor type, fifty box



SUNNING RAILWAY.—SCENES ON THE OFFICIAL OPENING DAY

harbor site known as Sam Kap Hoi, South West of Macao via Sunning, was opened to traffic for a distance of 40 miles in June of this year, and is the first railway financed, constructed and operated by Chinese in any part of the Chinese Empire. It runs through Sunning district, one of the most populous and prosperous sections in South China with a population of about 1,000,000 natives most of whom have been in contact with foreign influence and are large purchasers of foreign goods.

The company was organized with a capital of \$2,660,000 (Mex) of which the sum of \$2,000,000 was furnished by Chinese living in America and the balance subscribed by the Chinese merchants of Hongkong.

for an additional section of 25 miles and work is progressing on the construction of the balance of the road.

This line is of standard gauge (4 feet 8.5 in.) and is laid with 60 pound steel. The steel was purchased in Belgium and Germany and the tie plates, which are used on the curves and on every third tie on tangents, were purchased in Germany.

The rolling stock comprises six American and three German locomotives. One of the American locomotives is a small switch engine and the other five also from the Baldwin Locomotive Works, Philadelphia, are divided into two of 60 tons each and three of 65 tons each. The German locomotives are of the usual con-

and fifty flat cars. The flat cars are of American design and of 30-ton capacity each. A number of the box cars are fitted with windows and seats and are being utilized as second class coaches. All of the rolling stock is equipped with American air brakes.

The European type of side buffers are used and the couplers are of screw and ball type with link and hook connections to the draft gear. It was found, however, that the buffers as utilized were not suited to conditions and not a few were broken off on the curves on the initial trip over the line.

The coaches referred to were built by the Harlan & Hollingsworth's Company of Wilmington, Delaware, and the flat cars by Fitz-



SUNNING RAILWAY.—SCENES ON THE OPENING DAY





SUNNING RAILWAY.—OFFICES AND MAIN STATION AT SUNNING



SUNNING RAILWAY.—SHOPS AND TANK AT SUNNING

Hugh Luther & Co. of Chicago and the Middletown Car Works of Middletown, Pa.

The cost of the line is variously estimated from \$30,000 Mex. to \$34,000 per mile. Most of the gradients are comparatively low with the exception of one or two curves of heavy grade. To avoid tombs and graveyards, the line was laid out with some very sharp curves and with no tangents of any considerable length. The culverts are of stone and otherwise of cast-iron pipe, but many of them are of open design and crossed by open timber trestles. The timbers used are China fir and Borneo and Straits Settlements hardwoods. The sleepers were also made from hardwood from the Straits and all this timber was treated to protect it from the ravages of the white ant. Some of the trestles are of considerable length and were built with pile bents and timber spiked and bolted. Temporary mat sheds took the place of stations during the early part of the traffic, but at Kung Yik and at Sunning City the stations are very commodious. The one at Sunning is a three-story building and includes the general offices of the company and a res-

taurant. The company intends to maintain an uptodate hotel at this point as well.

The line is not provided with many switches or sidings for the reason that most of the traffic is through passengers and freight. One siding at a station is the rule and an extra siding the exception.

At Sunning and Kung Yik yard ample accommodations are provided, although at Sunning the curves are generally very sharp. American water tanks have been erected at Sunning and Kung Yik.

The company has installed a complete system of telephones throughout. Swedish instruments are used and have given satisfaction.

In the construction work American dump cars and tools were utilized almost entirely and had it not been for the boycott at the time of construction it is not improbable that American manufacturers would have secured the orders for all the construction supplies and equipment.

The earthwork was let by contract, but the tracklaying was supervised by the railway

management. Labor cost on an average of 50 cents Mex. a day (a high wage for Chinese labor) and the right of way cost from \$15 to \$900 Mex. per acre.

It might be said to be an American railway built by Chinese. This is due to the fact that Mr. Chin Yee Hee, the President, Chief Engineer and General Manager, gained his knowledge of railway matters in America where he resided for over 40 years. Not only is this true but the Chinese residents in America who subscribed the most of the capital had every confidence in the President and were not in favor of anything but American railway practice in construction and operation. The Chinese of the Sunning District are very proud of this line in view of the fact that not one foreigner is employed and not one cent of foreign money is invested in the enterprise.

President Chin Yee Hee makes his headquarters at the company's offices at 151 Connaught Road, Hongkong, while not out on the line looking after the company's interests there. It is said that the success of the enterprise is largely due to President Hee. He made it a



SUNNING RAILWAY.—OPENING DAY

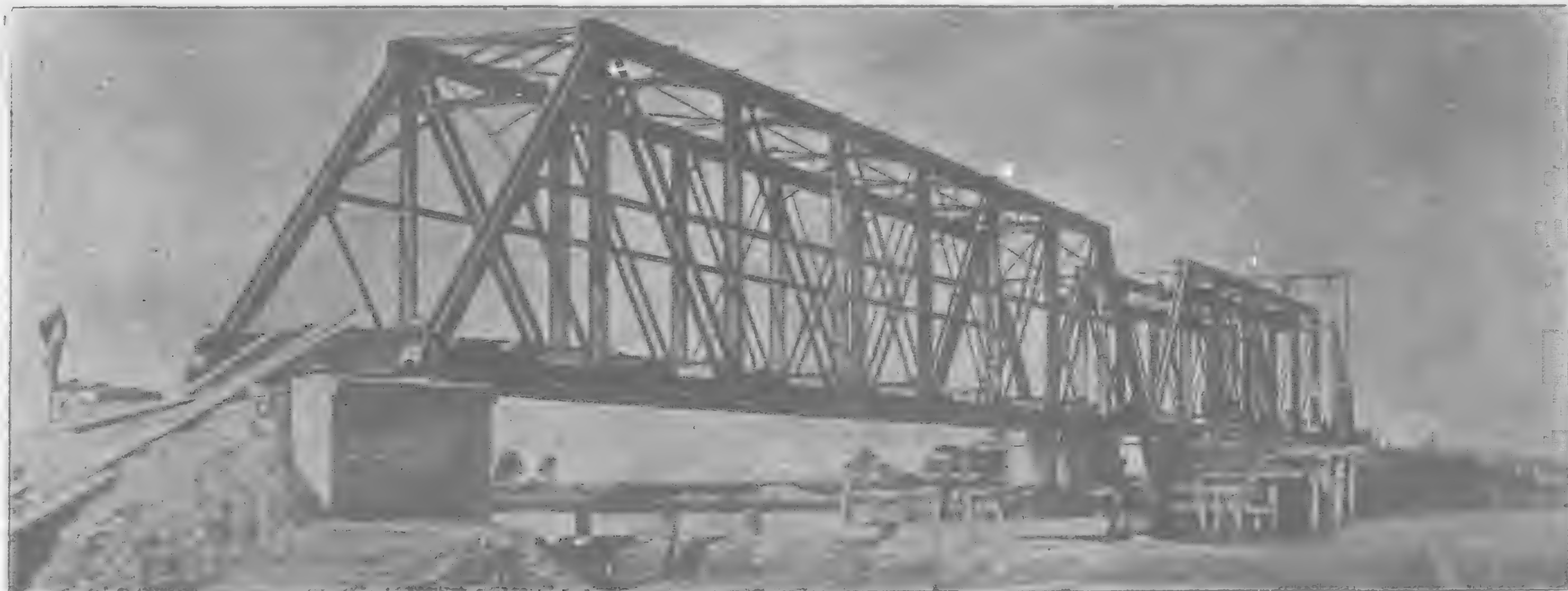


SUNNING R.Y.—AMERICAN (HARLAN &amp; HOLLINGSWORTH) CARS





SUNNING RAILWAY.—BALDWIN LOCOMOTIVES



KIANGSU RAILWAY.—BRIDGE OVER ZIA-TANG

point to respect the wishes of the natives and refrained from interfering with their superstitions. This was shown particularly in avoiding the graves and monuments the removal of which, according to the best Chinese superstition, would bring bad luck.

This company is already endeavoring to secure permission to extend northward to connect with the Canton-Hankow at Fatshan from Kong Moon, but this extension will prove very expensive and may not be realized for some time. There is also some opposition on the part of the Canton-Hankow Railway.

The new harbor and treaty port proposed at Sam Kap Hoi as terminus of the railway

is reported feasible by the Imperial authorities and is now being considered. With the opening of this harbor and the final extension of the present line northward to connect with the Canton-Hankow, the rich and enterprising district of Sunning will not only have access to a fine port but some day may boast railway connection with the capital of the Empire. From present indications the line will be completed to Sam Kap Hoi early next year.

The Kung Yik terminal is really a port reclaimed by the natives of Sunning District in 1905. Its area is about 100 acres, of which the railway occupies about half with its station, yard offices, warehouse, machine shops, and

foundry. At Sunning, the railway has a printing office and machine shop.

The salary paid the president of this line is possibly the lowest received by the head of any railway in the world. President Hee signs a voucher for \$80 Mex a month and the master mechanic is satisfied with \$40 Mex. a month. The schedule of wages to employees run from \$45 Mex. a month to engine drivers to firemen at \$18 Mex. a month and coolies \$15 Mex.

At present the 40 miles in operation over which there are three trains from either end daily show gross daily receipts amounting to about \$600 Mex., while the daily expenses does not exceed \$350 Mex.



SUNNING RAILWAY.—FREE RIDES FOR EVERYBODY



SUNNING RAILWAY.—SWITCH STAND



# THE TAO-CHING RAILWAY

(Imperial Chinese Government Honan Line) Pekin-Syndicate Railway

The Pekin Syndicate was organized in 1897, in London, with a capital of \$100,000 by British and Italian capitalists and had for its purpose

proceed with the works, using its own capital without asking for Government funds." The Chinese state that their sense of this

wards finding a line to the Yangtsze and surveyed a route over 200 miles to Siangyang on the Han River, but finally struck out across



TAO-CHING RAILWAY.—GENERAL VIEW OF PEKIN SYNDICATE MINES

the development of the almost inexhaustible mineral wealth of Shansi and Honan. After some delay negotiations were concluded in 1898 for a concession to develop the coal, iron and petroleum deposits within certain boundaries in the province of Shansi. A little later the concession was extended to cover that part of Honan north of the Yellow River. The capital of the company was then increased to \$7,600,000. The question of transportation became one of the most important problems to solve and it became necessary to provide railway transportation from the mines to the most convenient waterways. The concession provided for this contingency in a general way and has been interpreted as not only giving the right to construct a road to the nearest tributary of the Yangtsze, but to the Yangtsze itself, or in other words a general permission to construct lines at the discretion of the Corporation. The 17th Clause of the Pekin Syndicate concession reads:

"Whenever it may be necessary for any mine to make roads, build bridges, open or deepen rivers or canals, or construct branch railways to connect with main lines or with water navigation to facilitate transport of Shansi coal, iron and all other mineral products from the province, the Syndicate on reporting to the Government of Shansi is authorized to

clause is naturally restricted to merely local requirements, but the Syndicate has read into it a right to construct a trunk line if necessary

country towards Nanking and the mouth of the Yangtsze, and recommended a line over 350 miles long to Pukow.



TAO-CHING RAILWAY.—RAILWAY POLICE

from Shansi to the Yangtsze, which argument, if followed to its logical end, entitles them to build roads to any market in China at their option. The surveying party sent out by the Syndicate in 1898 directed their energies to-

The surveys through Southern Honan to the Han River to Siangyang were unfavorably reported as it was found that the water was not deep enough for the purpose at this point. Another line was surveyed to Pukow and this



TAO-CHING RAILWAY.—JAMISEN COLLIERY





JAMISEN COLLIERY.—PUMPS AWAITING INSTALLATION



JAMISEN COLLIERY.—CUT STONE FACING FOR SHAFTS



TAO CHING RAILWAY.—OFFICE AND SHOPS



JAMISEN COLLIERY



TAO-CHING RAILWAY.—LOCOMOTIVE TYPES



TAO-CHING RAILWAY.—COAL TRAINS



TAO-CHING RAILWAY.—CAR AND LOCOMOTIVE SHOPS





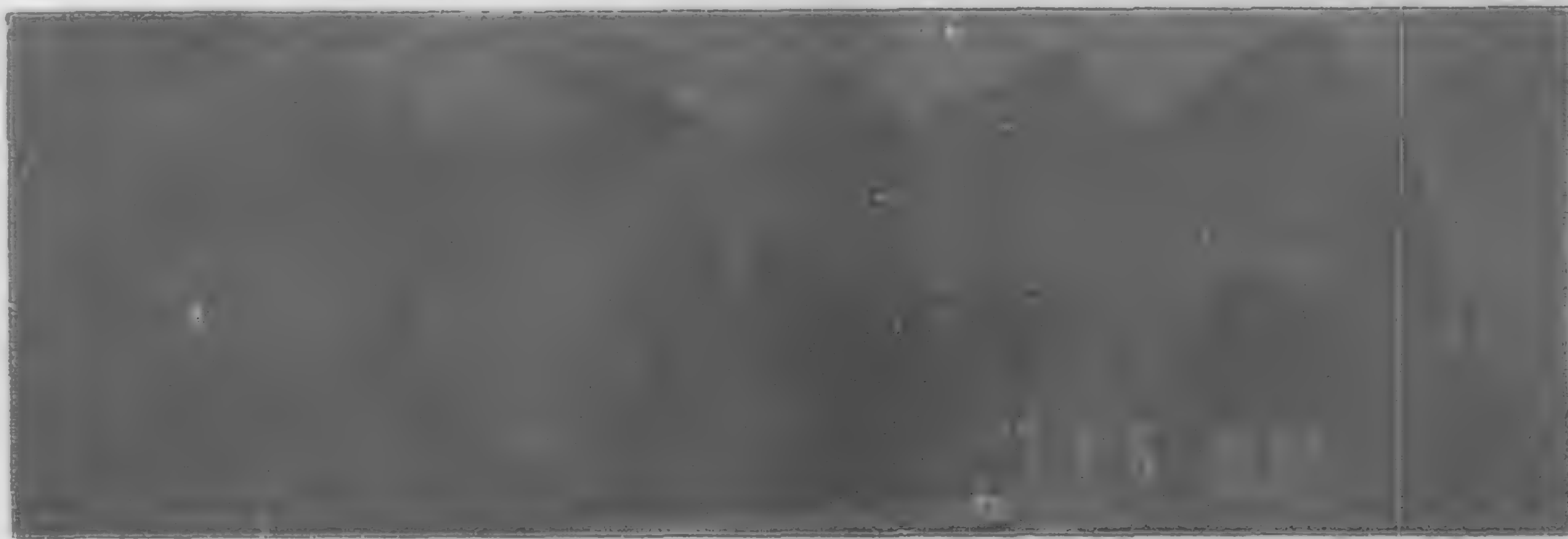
TAO-CHING RAILWAY.—YARDS



TAO-CHING RAILWAY.—COAL TRAIN

latter was recommended as the most desirable route and objective point. A survey was also concluded connecting Taoku at the head of navigation on the Wei River in North-eastern Honan to Tzechoufu in Shansi. The work of construction on the line was commenced in 1900, but this had to be delayed on account of the Boxer trouble. In 1902 work was renewed and a mining camp was established at Jamieson in Northern Hunan. With the establishment of this camp it was decided to construct a line from Taoku to Pashan, a slight modification of the regular survey. The line runs from Taoku to Sinsiang-sien by way of Weihsu continuing through Jamieson to Pashan. From there it will be continued to Tzechoufu. The line from Taoku to Pashan was completed in 1905, covering a distance of 92 miles approximately.

About the same time as the surveys were taking place in 1898 the British and Chinese



TAO-CHING RAILWAY.—LOCOMOTIVE SHOPS



TAO-CHING RAILWAY.—COAL TRAIN

was entered into in July, 1905, in which the Chinese Government agreed to take over the line from the Syndicate and give in payment gold bonds bearing interest at 5% and the control of the road would remain with the Syndicate until the bonds are redeemed. The cost of constructing the road to Pashan was estimated at £614,600 and is represented by a loan of £700,000 which is accepted by the Syndicate at 90. The loan runs for thirty years and is redeemable after 1916. While the line has been handed over to the Chinese Railway Administration it continues to be operated by the Syndicate, the latter receiving 20% of the net profits. The continuation of the line to Tzechou and provision for its construction was also included in the agreement.

Corporation, a rival syndicate having the support of the Government, was conceded the right to build the Tientsin Pukow Line and the Pukow-Sinyang line, as compensation for the slight to British interests, in granting the Peking-Hankow line to Belgium. The situation created conflicted with the schemes of the Pukow-Syndicate. This difficulty was subsequently solved by a combination of the two companies for equal participation in all future railway development north of the Yangtsze, and it is hoped that some time in the future to construct a line from the mines to some point on the proposed Pukow-Sinyang line. The Chinese have realized their error in committing themselves to such an indefinite agreement, secured at a time when they were ignorant of its value, and have set to work to undo their mistakes by purchasing the railway at its construction value. To this end an agreement



TAO-CHING RAILWAY.—WAITING FOR THE TRAIN



SIN-SIANG-SIEN STATION



TAO-CHING RAILWAY

SHOPS AND WATER TANK





TAO-CHING RAILWAY.—CHING HUA STATION

So while the Chinese have the satisfaction of owning the road, they paid for this luxury 10% more than it cost, in addition to the 5% interest charges for the 30 year life of the loan, and giving the Syndicate 20% of the net profits for operating it, following the general rule of railway loans that Chinese are too corrupt to handle loan funds without check on accounts and expenditures. Truly it was a wonderful deal, in which the much criticized Canton-Hankow redemption finds a parallel, but the Chinese were anxious to pay the price to oust the foreigner, so the latter cannot be censured. Mr. Kent in his work on "Railway Enter-

prise in China" observes that "the Syndicate has not in any sense abandoned its rights which have been clearly recognized by the Chinese Government, and Pukow, as the possible objective terminus, is still kept in view; though probably in the event of the construction of the Pukow-Hsinyan Line, some point in the British Section of the Tientsin-Pukow Railway would be selected as the terminal of any future line from the concession area in North Honan and Shansi." And here we have the germ of a possible future dispute and more political pressure brought to bear on poor old China to force her to live up to the ambiguous clause



TAO-CHING RAILWAY.—CHIAO-TSO STATION

of a commercial concession. The same argument would be sufficient to justify the construction of a road from Honan to connect with the Szechuen Railway or with any other road or outlet to a new market. It is difficult for an impartial observer to distinguish between such reasoning when indulged in by the British holders of an indefinite agreement, and the Japanese reading of a similar document as in the Fakumen dispute. Of course the Chinese Government clearly recognizes the rights of the Pekin Syndicate, as observed by Mr. Kent. At least they do so in principle, and are in no position to openly oppose the British pretensions. But those who run may read and the history of this Syndicate for the last few years



TAO-CHING RAILWAY.—CHING-HUA STATION



TAO-CHING RAILWAY.—LOADING A COAL TRAIN



SIN-SIANG SIERN STATION



TAO-CHING RAILWAY.—TSEN TSCHOU STATION



is an emphatic, though silent protest against this interpretation of the Clause. It may be taken for granted that in seeking to extend this clause to cover the construction of a trunk line 350 miles in length, the Syndicate overreached itself and antagonized Chinese opinion, and their subsequent trials and tribulations have arisen as a direct result. The Chinese have employed the only weapon at hand to combat such a pretentious scheme, and while they cannot afford to officially protest, "the pent-up anger in the heart" exists, and against this condition nothing will suffice but a complete surrender of the rights at a fair figure. To this feeling is traceable the repurchase by China of the Shansi rights.

The following from the 1906 report of the Syndicate bearing on this subject may be of interest:

"The persistent refusal of the provincial authorities in Shansi to permit the syndicate to acquire land and commence mining was fully explained in last year's report. It was arranged that a prominent Shansi official, named Ting Nieh-tai, together with several representatives of the Shansi Bureau of Trade, and of the gentry, should come to Peking to meet Mr. Brown (our agent general) and endeavor to come to a settlement. Mr. Brown was ultimately instructed that the directors would surrender the concession for the sum of £1,500,000 sterling, half in cash and the balance in guaranteed instalments, and he so informed the Shansi delegates. The counter offer made on their part was Tls. 600,000. Finally, on January 4, 1908, after the offer had been by



TAO-CHING RAILWAY.—INTERIOR OF MACHINE SHOPS



TAO-CHING RAILWAY.—CHIA TSO STATION



TAO-CHING RAILWAY.—INTERIOR OF LOCOMOTIVE SHOPS

successive stages raised to Tls. 2,625,000, the delegates informed Mr. Brown that this was their last word, and if it was not forthwith accepted they would withdraw from all further negotiations. At this stage the directors again sought counsel with the Foreign Office, and were informed that, in the opinion of Sir John Jordan, this was in truth about the limit of the Shansi delegates' offer (whose attitude, he added had recently become very uncompromising), and that there was no prospect of getting the Central Government to add to it. Under these circumstances, the directors took the responsibility of instructing Mr. Brown to close with the offer, if better terms were not to be got. Fortunately, Mr. Brown was able, as a last effort, to get the offer raised to Taelis 2,750,000, and with that he closed, half to be paid on Feb. 21, 1908, and the other half in three equal yearly instalments, beginning May 19, 1909. The directors have not abandoned all prospect of yet doing work in Shansi. It is part of the agreement that if hereafter foreign capital is required for mining, iron smelting, or transport of materials (meaning, presumably, railways), the Peking Syndicate shall have the first option. The directors consider the stipulation a very valuable one."

Recent reports from Shansi announce the formation of a native syndicate with a capital of Tls. 5,000,000 to take over the mining interests, but so far the funds have not been realized.

The Syndicate attaches great importance to the last agreement, and here again places liberal construction on the wording; "If hereafter foreign capital is required for mining, iron smelting or transport of materials, the Peking Syndicate shall have the first option." This has been presumed to mean railways, and the Directors of the Syndicate promised to make it their endeavor as soon as possible to take advantage of it.

Continued opposition has however met their attempts to market their coal in Honan, in competition with the small native shafts and the same antagonism among the gentry is recorded as obtained in the neighbouring province of Shansi. The central government is apparently powerless to intervene and regulate matters, and in the end the Chinese will emerge victorious.

There is a moral to this story, which all Britishers should take to heart. When they complain of the breakdown of British diplomacy in face of Chinese opposition, it is well to consider some of the causes leading up to such a situation.



# FUKIEN RAILWAYS



FUKIEN RAILWAYS.—DIRECTORS OF THE RAILWAY. HON. CHAU PAO, PROVINCIAL DIRECTOR OF PROVINCIAL RAILWAYS IN THE CENTER

The Fukien Railway, which is ultimately to connect this province (Fukien) with the Province of Kwang Tung, on the south, and Kiang Si, on the west, is now well under way. The route from Amoy to Changchow, a distance of 33 miles, has been surveyed and the right of way secured, and the tracks have already been laid for a distance of 3 or 4 miles. A large construction force is now working on the road and the work is steadily progressing. The terminus near Amoy is situated on the mainland at Sung Su, 2 or 3 miles distant from Amoy city proper. It adjoins the waterfront, and large ships may come alongside as soon as the piers are built. A railway depot and car shops have already been completed, are very substantially built of brick, and present quite an imposing appearance.

According to the prospectus of the company the railway is to connect Changchow in the center of the southern part of Fukien province with the port of Amoy. This will mean a railway about 35 miles in length and much difficult country to overcome. The company was originally formed with a capital of \$6,000,000 in \$5 shares on which a call of \$1 has been made. All the shareholders are Chinese. In fact, the officials of the company and the engineers in charge of the work of construction are Chinese, who have had the advantages of foreign education.



FUKIEN RAILWAYS.—SECTION OF ROADBED.





FUKIEN RAILWAYS.—LAYING TRACK NEAR SUNG-SU, AMOY



FUKIEN RAILWAYS.—TYPE OF CULVERT



FUKIEN RAILWAYS.—STATION AND OFFICES AT SUNG-SU (AMOY)



FUKIEN RAILWAYS.—CONSTRUCTING CULVERT



FUKIEN RAILWAYS.—CONSTRUCTING ROADBED. GRANITE BLOCKS FROM QUARRIES NEAR AMOY FOR ABUTMENTS





VIEW OF AMOY.—CHANGCHOW RAILWAY DEPOT AND SHOPS AT AMOY

The roadbed has been laid and grading practically completed for nine miles out of Amoy and the steel laid for about four miles. The rails for the road were all ordered from the Hanyang Iron Works in the Province of Hu-Peh, \$45,000 worth having been delivered, while \$75,000 worth are on the way. The contract price was about \$35 per ton. The ties or sleepers are all of Japanese manufacture, some 50,000 of them having been delivered and paid for at the rate of about 53 cents a piece.

**SUPPLIES FROM THE UNITED STATES.**—The bridges for this road have all been ordered from the United States through the United States Steel Products Co.'s branch at Shanghai. Considerable rolling stock has also been ordered through this firm, also American couplers, turntables, and other general supplies.

Only two locomotives so far have been ordered. One is of American and the other of German manufacture. Both are now here on the field. The German locomotive has just been set up by a local engineer, and the American engine is being put together by a personal representative of the American locomotive

company which manufactured it. The two locomotives are of similar type and each cost about \$9,000. Additional locomotives will doubtless be ordered according to whichever of the two locomotives proves the more satisfactory.

A comfortable depot with warehouse and shops have been constructed and the character of the buildings would indicate that the work throughout will be pursued with a view to permanency. So far, the directors have been conservative in view of the fact that it was an initial Chinese effort to construct railways in that section, and from what can be learned, as soon as the first section is completed and the directors have measured their capacity, greater expedition will mark the balance of the construction work.

The company has contracted with Japanese firms for the ties and sleepers and these are being delivered as required.

Changchow is a leading manufacturing center and in the vicinity there are a number of coal deposits that await development and the transportation that the railway will offer. Besides

coal there is an abundance of timber in that section for which there is a growing demand, and with better transportation facilities to Amoy the lumbering industry would bring a large revenue into the country. In addition to the coal and timber the section referred to is one of the most important sugar growing districts in South Fukien and rice is growing abundantly along the route proposed. Amoy is famous for its fine harbour which is admitted to be the most desirable between Hongkong and North China and is large enough to accommodate a large fleet of merchant vessels without any large expense in improvements.

Previous to the activity of the Amoy Railway Company, a coast railway was proposed, joining Swatow from the south, and Foochow in the north, with Amoy, but this did not receive much support in view of the unproductive character of the country through which the line would pass.

There is reason to believe that with a network of railways throughout the productive areas in Fukien carrying the product of the mine, forest and field, an era of development



FUKIEN RAILWAYS.—THE DIRECTORS DELIGHT IN TOURS OF INSPECTION OVER THE NINE MILES OF FINISHED ROAD





FUKIEN RAILWAYS.—CONSTRUCTION TRAIN AND DIRECTORS' CAR



FUKIEN RAILWAYS.—CAR HOUSE AT SUNG-SU



FUKIEN RAILWAYS.—"OFF" THE ROAD TO A SELECT PARTY



FUKIEN RAILWAYS.—CONCRETE GANG

would follow and Amoy with its splendid harbour would not only become as prosperous as in the days when she controlled the tea trade of Formosa, but her prosperity would be of a permanent character. It is well known that there is an abundance of iron, lead, pottery, clay, salt deposits, etc., and that the agricultural opportunities, especially in the culture of sugar, tea, tobacco, and rice, may not, on account of the inaccessible character of many sections of the country, be estimated at this time.

The completion of this railway to Changchow is the first step in the real development of the country and when other extensions connect such points as Lung Yen Chou, Ting Chou Fu, Hu Too, and Chuan Chou Fu, this important section of China buried within itself will be heard from and Amoy will surely become one of the leading ports of Eastern Asia.

#### CANTON-AMOY RAILWAY

This railway is still in the air, and has not progressed beyond the paper stage. Some time ago the Viceroy of the Liang Kwang at Canton issued a proclamation stating that in regard to the Canton-Amoy railway, the first section would be from Chuen Lung Han, outside the Eastern Gate of Canton, to Whampoa a distance of 40 li and then from Whampoa passing Shek Lung, Pok Lo, Kwai Sin, Hoi Luk Fung and other districts to the Chiu and Wai Cities and thence to Amoy in Fukien province a distance of about 1,500 li; that in the first section from Canton to Whampoa, he (the Viceroy) had ordered the Pun U Magistrate to make a survey of the track in order to find out whether this track would interfere with the houses and tombs of the people; that land should be purchased and marked off by pegs; that owners of land within the track should deliver their deeds to the company for examination; that the land would be bought from them at reasonable prices, and that they would not be allowed to raise the prices to an exorbitant rate; that if there be any houses, tombs, fruit gardens, or fish ponds in the way of the track, they would have to be removed and compensation would be given for such removal; that property owners who desire to be shareholders of the railway may convert the proceeds of their property into subscriptions thereto and interest would be paid them accordingly; and that those who dare to raise the price of land or give obstruction to the road would be strictly punished.

#### MANUEL EARNSHAW & CO., LTD.

The well known engineering firm of Messrs. Manuel Earnshaw & Co., Manila, has been incorporated with a capital of P1,600,000 under the laws of the Philippine Islands and will continue to carry on the business along the same lines as formerly. The officers of the company are: President, Mr. Manuel Earnshaw; First Vice-President, Mr. Tomas Earnshaw; Second Vice-President and Treasurer, Mr. Daniel Earnshaw, Jr.; and Mr. Charles A. Clark, Secretary.



TAO-CHING RAILWAY STATION



# THE SHANGHAI-NANKING RAILWAY

\* By A. H. COLLINSON, M. Inst. C. E.



SHANGHAI-NANKING RAILWAY.—HIS EXCELLENCY TAOTAI CHUNG MUN-YAU, MANAGING DIRECTOR, IN THE CENTER.  
MR. A. W. U. POPE, GENERAL MANAGER, TO HIS LEFT.

## Editorial Note:

We leave the story of this line to be told by its Chief Engineer. There has been so much criticism directed against the extravagant use of the loan funds, that Mr. Collinson's paper will enable readers to arrive at an approximate appreciation of the work carried on under his direction. Mr. Collinson's figures as given herein, however, fall short of the actual amounts expended, for the line to date according to published figures has cost £11,300 per mile. The costs of rolling stock are also subject to revision and in some instances are higher than the figures given herein and are now being determined by investigation of the construction accounts.

It is estimated that, omitting all financial charges, commissions and other items, the actual cost of construction will be £10,600 per mile.

It may be said that the British & Chinese Corporation, in living up to the terms of its agreement to build a line embodying the most approved railway principles consistent with economy in cost, while fully complying with the provision of excellence, has failed to meet the Chinese idea of economy. It may be accepted as a fact, that China's attitude towards all foreign loans and especially British has been materially altered as a result of lessons learned from the Shanghai-Nanking administration, in which sole control of expenditures was under the Foreign Chief Engineer. There are always two sides to any dispute and both parties seem to have well founded grounds for complaint against each other, but pending a final report based on full investigation of the expenditures judgment should be suspended. To the difference of opinion arising from the construction of this line, in which the Chinese hold that extravagance prevailed to increase the size of the loan and commission on purchases, and the persistent refusal of the Corporation's representative to admit their capacity and honesty, can be traced the many set backs to British diplomacy in China, and her final refusal to have any further dealings with the Syndicate, and the substitution of the Hongkong & Shanghai Bank as the representative of British inter-



MR. A. W. U. POPE  
GENERAL MANAGER OF THE SHANGHAI-NANKING RY.

ests in the recent Canton-Hankow-Szechuen Loan preliminaries.

Although the amount of the Loan under the terms of the Agreement with the Corporation was £3,250,000, only £2,900,000 have been issued in two instalments. The attitude of the Chinese Government is that instead of authorizing the balance of the loan, they will supply any further funds needed for the completion and operation of the line from the Imperial Treasury, and to this end have already appropriated Taels 1,604,958 (£221,373).

The road does not pay, despite the strenuous efforts of a most experienced and competent foreign manager, who has already done wonders in the face of almost insurmountable obstacles.

The capital expenditure on the construction of the line up to the end of 1908, was Taels 16,690,508, to which must be added the commissions on purchases amounting to Taels 428,349 or Taels 17,118,850 @ 7.25 (£2,361,221) or £11,300 per mile (209 miles including sidings). The earnings of the line for 1908 amounted to \$ Mex. 1,610,477, of which sum \$1,393,591 was from passenger service alone, the freight receipts only amounting to \$141,218. The expenditures were \$1,092,662, or 67.85% of the receipts. As the interest on the loan amounts to \$1,274,134, there is a wide deficit to be faced until the line is able to meet its fixed charges, and this must be paid by the Imperial Government. Under existing conditions, with the collection of provincial likin tax on freight, there is little hope of any great expansion to the goods traffic. If the likin were removed or materially reduced, the line would benefit and be made to pay in a short time. But here the Chinese Government remains firm and refuses to abolish the tax which would make the road profitable and relieve the Imperial Treasury from making good the deficit.

The Viceroy of the Liang Kiang has issued a proclamation making the likin tax on railways lower than on the creeks and canals, but even this does not seem to remedy matters. The Chief Accountant observes in the last Budget that the lack of goods traffic is in the main responsible for the high ratio of expenses to earnings, as also the excessive charges for the purely Chinese Department. The Chinese last are naturally resented as an

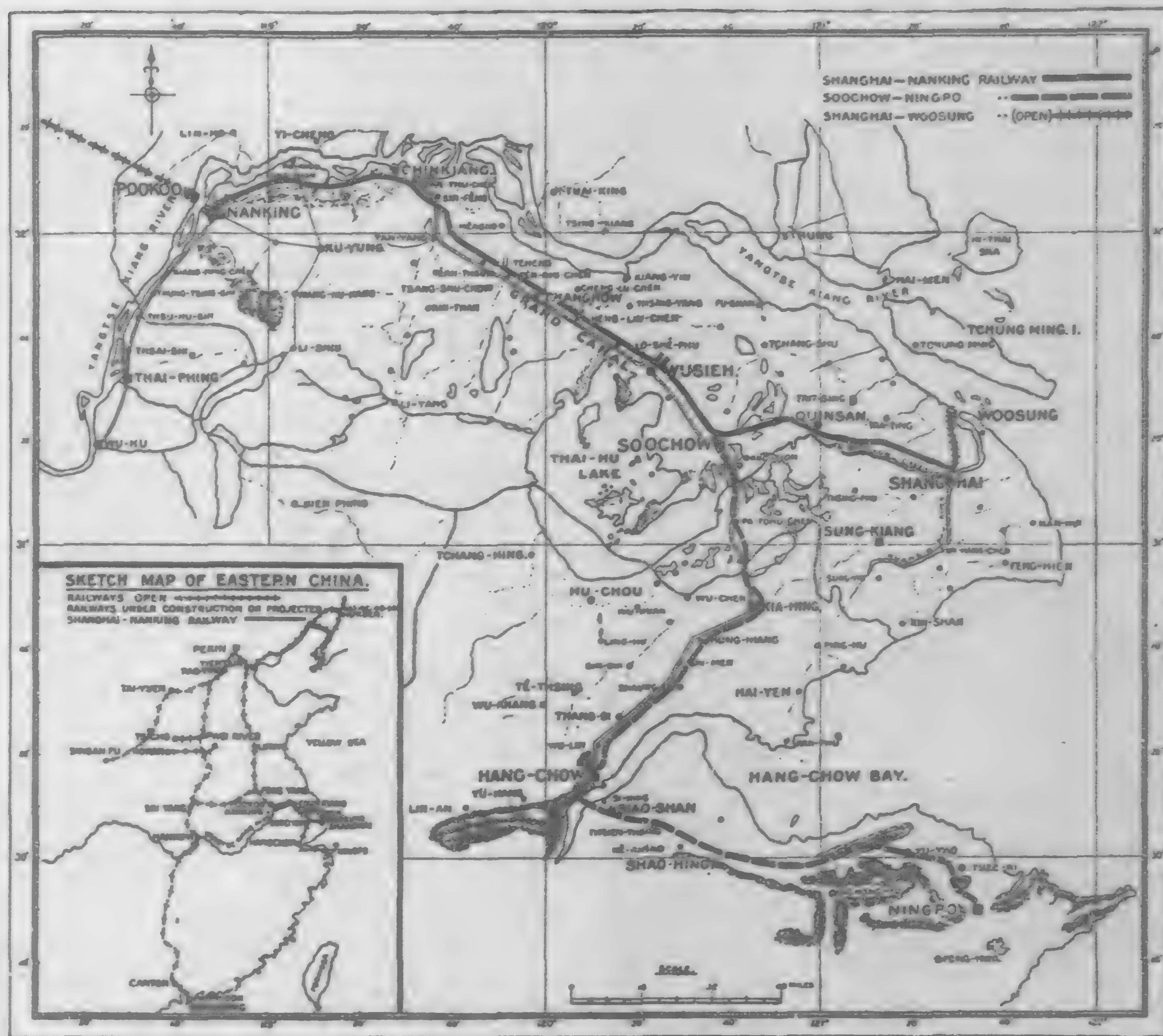
\* Engineer-in-Chief of the Shanghai-Nanking Railway.



unnecessary burden and by the foreign employees as a reflection on their capacity and loyalty. These charges could be materially reduced but as yet the Chinese Government has shown no disposition to decrease the purely Chinese staff. Their duties consist largely of translating all documents and accounts for transmission to Peking and much unnecessary work is entailed.

To the outsider the situation is amusing and instructive. The shoe has been shifted to the other foot, and it pinches hard. The foreign wince from the pain, resents the hidden slight to his integrity and the loss to his pocket by the excessive addition to the working expenses of the line. There is no reflection or insinuation against the honesty or capacity of the foreign officials, but they are simply victims of circumstances over which they have no control, and however strenuous their efforts to make the line pay, they will always be handicapped.

This attitude on the part of China provides food for reflection, to those who can read between the lines. Out of the net profits of the road the British and Chinese Corporation are to receive 20%. If there are no profits they receive nothing. If the Chinese abolish the likin tax or enforce honesty in collecting the higher creek rate, which is a tangible asset to the Treasury, thus diverting the carrying trade to the railway they will contribute to the prosperity of the Corporation by giving up 20% of the profits. The likin tax on goods is assured while boat traffic exists on the creeks and canals. By holding to this source of revenue, they are assured of funds to assist in paying the deficit on the railway, and making the enterprise unprofitable to the Corporation, and hastening the day when they will agree to a surrender of their rights at a fair consideration. As in the case of the Pekin Syndicate, there is a moral to this situation which British interests may well ponder over.



The Shanghai-Nanking Railroad and Its Connections.

# REVISED SUMMARY OF COST BY MAIN HEADS AND COST PER MILE WITH PERCENTAGES

MAIN HEAD.	TOTAL COST TO END OF JULY 1909.	COST PER MILE ON SINGLE LINE BASIS.	%
I.—PRELIMINARY EXPENSES. (Survey; Plant).....	\$ 16,978.12	\$ 73.82	101
II.—LAND.....	1,837,063.74	7,987.23	10,913
III.—FORMATION. (Earthwork; Double Line; Tunnels; Creeks; Roads)	1,689,343.51	7,344.97	10,036
IV.—BRIDGE WORK. (Major and Minor Bridges; Culverts; Drains).....	1,963,544.66	8,537.15	11,664
V.—FENCING. (Boundaries; Signs).....	42,614.40	185.28	253
VI.—ELECTRIC TELEGRAPH.....	70,898.42	308.25	421
VII.—TRACK. (Ballast; Permanent Way).....	4,876,585.11	21,202.54	28,969
VIII.—STATIONS AND BUILDINGS. (Buildings and Fixtures; Station Machinery; Furniture; Workshops and Stores; Temporary buildings other than quarters).....	1,944,654.87	8,455.02	11,552
IX.—PLANT. (Construction Plant; Locomotive and Carriage and Wagon and Engineering Tools and Plant; Steam Launches; Houseboats, etc.; Printing Tools and Plant; Electric Plant; Locomotive and Car- riage and Wagon Rolling Stock).....	2,667,888.36	11,599.52	15,848
X.—GENERAL CHARGES. (Engineering; Accounts; Stores; Direction; Medi- cal; Locomotive; Traffic; Chinese; Miscellaneous).....	1,724,280.01	7,496.87	10,243
Total of Final Construction Heads.....	\$16,833,851.20	\$73,190.65	

## DEDUCT.

2-5 cost of Earthwork Soochow Divi- sion.....	\$157,056.89
5-12 cost of Bridge work Soochow Di- vision.....	323,127.71
	480,184.60

2,087.76  
\$16,353,666.60 71,102.89

## ADD

Commission on Purchases in England.....	227,837.16	990.60
Commission on Purchases in China.....	202,238.45	879.30
Commission General.....	8,299.45	36.08
Nanyang College Donations.....	10,000.00	43.48
Exchange Account.....	61,248.60	266.30
Likin Confiscation Account.....	3,825.64	16.63
Land Exchange.....	9,247.34	40.21
	\$16,876,363.24	\$73,375.49

Mileage including sidings and loops—230 miles of single line.

Average cost per mile to end of July 1909, \$73,375.49 which at an estimated average rate of \$7.2 to a £ gives £10,191 per mile open

The preliminary agreement for the acquisition of a loan for the construction of the SHANGHAI-NANKING RAILWAY was signed on the 13th May, 1898, at Shanghai between the Director General of the Chinese Imperial Railway Administration, Sheng Hsuan Hwai, acting under instructions from the Tsungli Yamen, and the British Firm of Jardine Matheson & Company, for themselves and on behalf of the Hongkong & Shanghai Banking Corporation, representing as Joint Agents a British Syndicate. On the 12th day of December, 1902, an Imperial Decree was issued by the Throne and on the 9th day of July, 1904, a final agreement between Sheng Kung-Pao, Director General of the Imperial Chinese Railway Administration, and the British & Chinese Corporation, Ltd., was signed at Shanghai by Sheng Kung-Pao, the Director General of the Imperial Chinese Railway Administration, acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Co., and the Hongkong & Shanghai Banking Corporation, representing as Joint Agents the British & Chinese Corporation, of the other part.

The final agreement provided for the issue of a sterling loan for an amount not exceeding £3,250,000 secured by Imperial Chinese Government Bonds with the railway as first mortgage security therefor. The price agreed upon for the loan was 90 per cent of the nominal value of the bonds which bear interest at the rate of five per cent per annum on their nominal value payable half yearly.

The duration of the loan is fixed at fifty years commencing from the date of the ratification of the agreement, but under certain conditions the agreement provides for the redemption of the loan after 12½ years and at par after 25 years.

The amount of the loan was based on the preliminary surveys and estimates which were prepared by the consulting engineers, Messrs. Sir John Wolfe Barry, the late Gabriel James Morrison, and A. J. Barry, M.Inst.C.E., and included provision for payment of interest out of capital during construction, £1,000,000 the agreed purchase price of the existing Shanghai-Woosung line, the sum of £250,000 for the purchase of land by the Chinese Administration for a double line of railway for the whole distance, and for the construction and equipment as economically as possible in accordance with the best modern system of the line from Shanghai to Nanking.





S. N. R.—TRAIN

In July, 1903, a staff of engineers was engaged in England with the author as Engineer-in-Chief, and work on the permanent survey and location was commenced as soon as the numerous difficulties inseparable with a new undertaking of this nature had been overcome.

It was decided that in the first instance work only on the section from Shanghai to Wusieh should be commenced in addition to some of the heavier work on the Chinkiang-Nanking Section, including the tunnel and deep cuttings in the vicinity. The permanent surveys and estimates were completed during the summer of 1904 and approved by the Director General, and construction work was commenced in the following autumn, considerable delays were experienced in the initial stages however, particularly in land acquisition, matters in this respect improved in the spring of 1905 when

on April 25th the ceremony of cutting the first sod was performed by H. E. Sheng Kung-Pao at Shanghai, and the first section of the railway was opened to traffic to Naziang on November 20th of the same year, and in the following July to Soochow and Wusieh, to Changchow on May 15th, 1907, to Chinkiang on October 15th, 1907, and on March 28th, 1908, the first train ran from Shanghai to Nanking in 5 hours and 37 minutes inclusive of all stops.

**Alignment.**—The alignment generally follows the line laid down on the preliminary survey by the late Mr. James Morrison, M.Inst.C.E., excepting that at Quinsan the writer decided a better route could be got by passing the city on the south instead of on the north; a considerable improvement in alignment was also made between Lungtan and Nanking, the route being shortened with a better line and easier gradients.

During the preliminary examination of the country between Shanghai and Nanking, the writer came to the conclusion that in locating the railway any attempt to avoid all interference with the almost countless graves and houses would, besides ending in failure, have involved a succession of curves and kinks absolutely ruining the general alignment together with all ultimate prospects of fast running and economical operation, he therefore recommended the adoption of the longest straights possible as likely to be in the end the most satisfactory, both as regards directness and therefore shortness of route, first cost of construction, and future cost of maintenance and operation, a policy which was fully endorsed by the Chinese Authorities and was worked up to.

The line does not interfere in any way with any ancestral halls, tombs, or monuments, some slight deviations being made to avoid disturbances of this nature.

The total length of the railway on centre line from Shanghai to Nanking is 193.02 miles, the section to Soochow for a distance of 53 miles 1,564 feet has been constructed with works for a double line, the extra cost over single line works out in the proportions of five-twelfths (5-12ths) for the bridgework, and two-fifths (2-5ths) for the earthworks.

The following tables give particulars of the gradients and curves adopted, from which it will be seen that the ruling gradient is 1 in 200, but only 5.64 miles or 2.9 per cent of this, and the sharpest curve 3°.

The gradients in general are easy, there being 128.34 miles of flatter than 1 in 1,000 or level line.

The aggregate length of the curves between Shanghai and Nanking being 19.8 miles, the sharpest 3°, but only two of these totalling 4,180 feet in length.

The ratio of curve to total length of line equals 9.75%.

## GRADIENT ABSTRACT

Mile 0 to 193.			
Inclination.	No.	Miles length	Percentage of total length
1 in 200 or 0.5%.....	6	5.64	2.9
1 in 250 or 0.4%.....	8	3.30	1.7
1 in 300 or 0.33%.....	19	13.50	7.0
1 in 350 or 0.28%.....	1	0.20	0.1
1 in 400 or 0.25%.....	6	5.91	3.0
1 in 500 or 0.20%.....	57	22.35	11.6
1 in 600 or 0.16%.....	1	0.45	0.2
1 in 700 or 0.14%.....	2	1.57	0.8
1 in 1,000 or 0.10%.....	23	11.74	6.1
Flatter than 1 in 1,000, including level.....		128.34	66.6
	123	193	100.00



A. H. COLLINSON, M. I. C. E.  
CHIEF ENGINEER OF THE SHANGHAI-NANKING RAILWAY DURING CONSTRUCTION

## CURVE ABSTRACT

Mile 0 to 193			
Angle of Curvature.	No.	Feet Length.	
0°-30' Radius = 11,459 feet.....	2	700	
1°-0' " = 5,729.6 ".....	37	57,192	
1°-30' " = 3,819.8 ".....	2	7,530	
1°-40' " = 3,437.9 ".....	1	2,420	
1°-50' " = 3,125.4 ".....	2	3,630	
2°-0' " = 2,864.9 ".....	11	19,574	
2°-50' " = 2,022.4 ".....	2	4,270	
3°-0' " = 1,910.1 ".....	2	4,180	
	59	104,496	
	Miles.....	19.8	

Ratio of curve to total length of line = 9.75%.

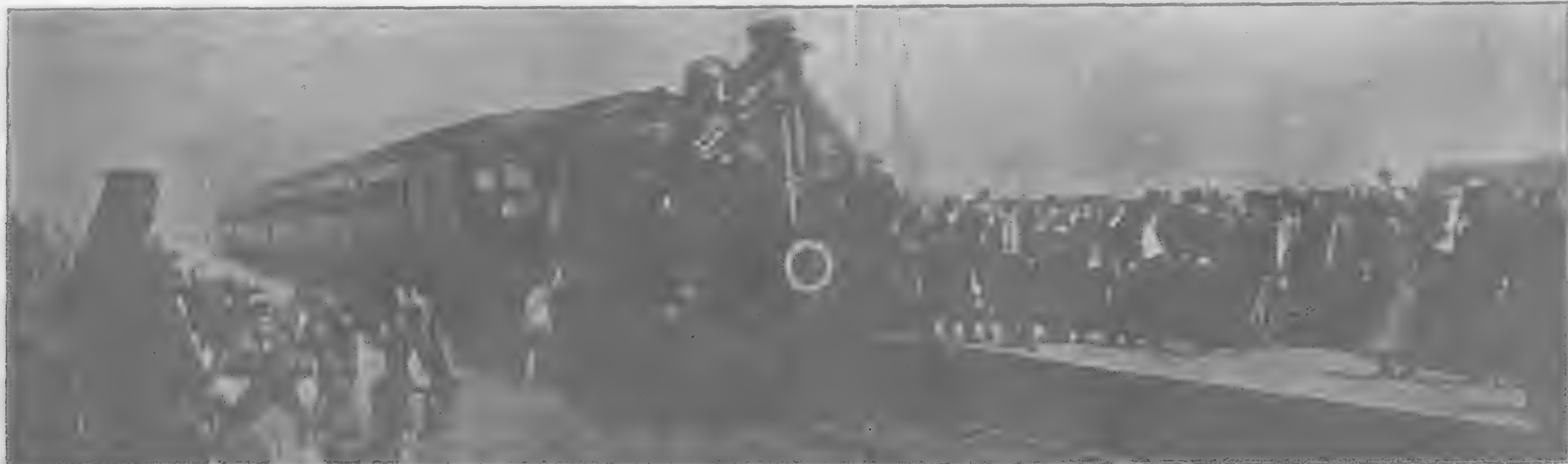
All curves sharper than 1° curvature (radius 5,730 feet) are entered by transition curves 200 feet in length in all cases, an easy method, due to the late Mr. Gabriel James Morrison, was adopted for setting out these curves, the formula is too lengthy to give in detail in this paper, but the method is fully described in the more modern treatises on surveying, and the author also thinks in the minutes of the Institution of Civil Engineers.

The country traversed by the railway between Shanghai and Nanking is well known to the members of this society and does not need description at length.

From Shanghai to Tanyang the line crosses the highly cultivated alluvial plain of the Yangtze Valley, intersected with a network of canals and creeks, the following principal cities and towns being situated on the route:

Naziang, Quinsan, Soochow, Wusieh, Changchow and Tanyang; after leaving the latter city the country changes, the line traverses an undulating and rising country until it reaches a ridge or watershed at mile 144, from this ridge it descends on easy gradients to Chinkiang City along an undulating country necessitating heavy cuttings and a tunnel through the Fort Hill.

From Chinkiang the alignment runs at the foot of the hills as far as Lungtan and so avoids the outer country subject to periodical inundations. From Lungtan the route runs through



SHANGHAI NANKING RAILWAY.—ARRIVAL OF FIRST TRAIN AT NANKING



hilly country to within  $1\frac{1}{2}$  miles of Nanking, involving very heavy earthworks both in cutting and embankment, the summit of the railway is reached at mile 186, the rail level being 91.28 feet above the I.M.C. low water mark at Shanghai.

The terminus at Nanking is on embankment, the only possible site for the station yard being on low swampy ground on the south bank of the Yangtze and subject to annual inundation which necessitated heavy earthwork charges, the area required for the yard having to be raised an average of 15 feet.

**Earthworks.**—The type width of embankment for double line at formation level is 30 feet, and for single line bank 17 feet 6 ins., the slopes being  $1\frac{1}{2}$  to 1, single line cuttings are in general 25 feet 6 ins., and double line 38 feet in width at formation level. The usual slope of the cuttings is  $1\frac{1}{2}$  to 1, but in many instances this had to be increased to 2 to 1 and in one deep cutting on the Chinkiang Section a slope of 3 to 1 was found necessary.

From Shanghai to Tanyang nearly all the embankments were made from side cutting, an exception being the bank across the Hsu Shir Kwan marsh at mile 60, which had to be topped entirely by light railway and wheelbarrows, the seat of the embankment being continually under water or waterlogged and borrowpits alongside impracticable, an allowance for

The following are the actual figures:—

	Cubic fongs.
In Cuttings and Banks.....	1,175,831
Station Yards.....	118,551
Creek Divisions.....	83,501
Roads.....	29,878
	<hr/> 1,407,761
	= 5,213,929.63 cubic yards.

Of this

Fongs 447,939 in 5' 0 bank or under....	= 36%
Fongs 371,412 in 10' 0 bank or under....	= 31%
Fongs 356,480 in 10' to 30' bank or under..	= 33%
	<hr/> 100%

29,878 fongs of brick rubble were boated for use in topping high embankments.

Cost.

5' 0 bank or under average.....	\$0.35 per cubic fong.
10' 0 bank or under average.....	\$0.376 per cubic fong.
Over 10' 0 bank under average.....	\$0.51 per cubic fong.
Pumping borrowpits.....	3% of total cost.
Service roads and bridge.....	5½% of total cost.

The above rates include the cost of all plant, such as light railway, which was provided

slopes have been drained with stone rubble counterforts connected with arches of the same material carefully handpacked on the face. The author considers this form of drainage far preferable to the more common V-shaped drainage generally adopted in railway practice, the arches not only serving as drains but also to support the loose material. He has known this method of arched counterfort drainage to succeed in stopping slips in heavy clay when all other means had failed.

**Bridges and Culverts.**—The bridgework from mile 1 to Wusieh, at mile 80, was very considerable for the reason that although there are no bridges of larger span than 60 feet, 164 navigable canals and creeks had to be crossed, an average of just over two bridges per mile. From mile 80 to mile 144 there are rather more than 1 a mile, the work, however, being of a heavier nature. From mile 144 to Nanking there are 69 bridges, mostly minor openings, as owing to the nature of the country there are much fewer defined main creeks.

The total number of bridges constructed from Shanghai to Nanking numbers 303, having a total waterway of 5,857 lineal feet. From mile 1 to 144 there are 20 major bridges and 313 minor, while from mile 144 to Nanking there are 5 major bridges and 64 minor.

**Culverts.**—Between mile 1 and Nanking there



SHANGHAI-NANKING RAILWAY.—THE NEW STATION AND ADMINISTRATION BUILDING AT SHANGHAI

settlement of 25% in height was made in this latter work, which proved to be barely sufficient.

Between Tanyang and Chinkiang portable light railway was largely used, light rails and steel all round tip wagons holding one cubic yard were extensively employed in tipping the excavation from cutting to embankment, but it was found that with a lead exceeding 1,000 feet it was more economical to tip the cutting to spoil and to make the bank from borrowpit. At the Nanking terminus a metre gauge locomotive with a set of twenty-five 4 cubic yard trucks were advantageously employed in bringing earth from a hill  $1\frac{1}{2}$  miles distant to fill the station yard, this plant being supplemented by 5 miles of light railway, wheelbarrow and basket transport working from nearer borrowpits.

**Cost of Earthwork.**—Shanghai Division.—The quantity of earth required for filling at Woosung workshop yard, Shanghai station and Markham Road goods yards, which chiefly had to be led by locomotive from long distances, dumped and recarried by baskets, amounted to over 100,000 cubic fongs at a total expenditure with all charges of \$106,216.00.

From mile 1 to mile 144 inclusive.

when required by the Railway. From mile 144 to Nanking, mile 193.

The quantities of earthwork were as follows:—

	Cubic fongs.
Embankment.....	965,000
Cuttings.....	285,000
Total.....	<hr/> 1,250,000

Total cost \$760,000—\$15,200 per mile, or 60 cents per cubic fong average for all classes of heavy earthwork, including embankments from 10 to 30 feet in height and cuttings from 15 to 60 feet deep. Rates include cost of plant, locomotive and all contingent charges.

The work throughout was let by contract to native contractors at schedule rates, payments being made on measurements from excavation in cutting or borrowpit with the usual allowances for extra lead exceeding an average of 200 feet.

The slopes of most of the deep cuttings have been turfed to prevent erosion and experiments have been made in sowing many of the slopes with grass seed with a similar object.

Very little trouble has been caused by slips. In the few cases where these have occurred the

are 405 culverts having a total area of 1,992 sq. feet, particulars of these have also been given above.

Between Shanghai and Soochow, with few exceptions, the abutments and piers of the bridges, which have been built for a double line, are constructed entirely of brickwork in cement on cement concrete foundations.

From Soochow to mile 144 the majority of bridges are constructed of coursed granite set in cement on concrete foundations, while from mile 144 to Nanking the larger part of the substructure consisted of cement concrete.

Three types of bridges were generally adopted, abutments with splay wing walls, abutments with straight return wing walls, and pier abutments.

Wherever possible, where headway would permit, arched superstructure was adopted (diagram 7 illustrates a type) but in the majority of cases, more particularly between Shanghai and Sinfeng, mile 138, steel girder superstructure had to be used.

The majority of creeks crossed being navigable, sufficient headway had to be given for boats to pass with their masts down. The headway was invariably fixed from that of the lowest existing bridge on the creek.





SHANGHAI-NANKING RAILWAY.—CHANGCHOW STATION AND YARD

It is impossible in this paper to refer in detail to the difficulties encountered in the construction of many of these bridges. The foundations, hardly without exception, were bad, as was to

ings concrete inverts and apron walls were found necessary.

Two typical cofferdams are illustrated.

The chief difference between this coffer-

top of the inside row, at water-level was bolted a 12'×6' waling leaving a rectangle inside of 49' 9"×18' 3". Two sets of framing, consisting of 12"×6" timbers were bolted and strap-



SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION AND MACADAM ROAD TO CITY

be expected in crossing an alluvial plain, necessitating heavy charges for cofferdam, timbering and pumping work. Many of the foundations had to be piled, and in the smaller open-

dam and others lies in the fact that the inner line of piles is packed in the puddle and not inside the foundation. Two rows of piles were driven into the bed of the creek round the

ped together and floated in the water inside the cofferdam. This framing was constructed so as to leave 3" clearance all round to allow sheet piling to be driven between it and



SHANGHAI-NANKING RAILWAY.—THE SHOPS AT WOOSUNG





SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION

the waling. The two frames were exactly similar, the top one floating in the water was bolted through the waling and piles, leaving 3" clearance for the sheet piling. The lowest frame was weighted and sunk as far as possible without the aid of a diving costume and kept down by distance pieces from the top frame. Sheet piling was then driven, the outside row of piling was kept from bulging outwards by a waling sunk with stirrups round two piles, being kept down by a wedge driven between the waling, the stirrup and the pile.

This form of cofferdam proved most economical in operation, one, I am informed by Mr. A. C. Clear, who introduced the type on the

1" poling boards with walings at 4 ft. centres being used, and the concrete spread over a large area to obviate the use of piles put in. Three cofferdams were constructed for carrying out the central pier foundations, the maximum head of water being 15 ft. The rest of the work was carried out in brickwork in cement with concrete facings and copyings. The arches were turned in a mixture of lime and cement mortar, the backing being of cement concrete, cement rendered and tarred. The total cost of this bridge was \$116,451.34. Of this sum the foundations, including cofferdams, steam pumps and plant, cost \$50,194.75. 1,249 barrels of cement were used in the work.

cross girders and longitudinal rail bearers. The erection was carried out entirely by Chinese labor under European supervision, the girders being rivetted up on the embankment and launched into position on timber haulks supported on temporary sleeper cribs. The cost of this bridge was \$67,419.74.

Several of the bridges in the neighbourhood of Soochow are of interest, more particularly Nos. 105, 108, 109 and 110, the latter two being the only skew girder bridges constructed on the railway, the cost of these amounted respectively to \$59,281.83, \$50,469.51, \$30,506.53 and \$33,283.17.

Another major bridge is No. 231, over the



SHANGHAI-NANKING RAILWAY.—SOOCHOW STATION

work, having been drawn and used in 8 or 9 different foundations.

The other cofferdam needs no description, being of the usual type excepting that the sheet piling is birdsmouthed, the author having introduced this joint in this part of the country.

The bridge No. 55 at mile 30 is the first of any importance where the railway crosses the Hsin Yong Kong. The double line bridge consists of four through girder spans of 40 ft. with two 20 ft. arches on either side. The foundations for the arches were carried out in the following manner:—

An embankment was tipped out over the area of the six pier foundations and timber trenches were sunk through this embankment,

The next major bridge, No. 68, over the Grand Canal, west of Quinsan, consists of three through girder spans of 60 ft. The foundations for the piers were put down in cofferdams, in cement concrete, the abutment piers being built in the dry with ordinary timbering. The substructure is composed of coursed granite masonry in cement with granite ashlar pilaster caps and string courses. The depth from under side of girder to the Canal bed is 26 ft. leaving a clear headway at high water level of 15 ft., the central piers have circular cut waters carried up above high water level. The main piers are 35 ft. X 6 ft. 6 ins. X 26 ft. from top of concrete. The steel girders are of the through type with one centre girder and two face girders,

Grand Canal, excepting that the masonry piers above cut water level are battered on all faces, and the bridge is for a single line of railway. The height from underside of girder to creek bed is 38 ft. with a clear headway above high water line of 25 ft., the height of pier from top of concrete to girder level being 35 ft., cost \$43,359.49.

A reinforced cement concrete skew arch road bridge was erected over the canal at Soochow to carry the station road approach. The abutments were constructed with the granite from the old foot bridge, near the site of the bridge, the spandrels and arch being built in cement concrete reinforced with corrugated steel rods interlaced with wire. The total cost of this bridge was \$12,145.09, including the pulling



SHANGHAI-NANKING RAILWAY.—SOOCHOW GOODS DEPOT





SHANGHAI-NANKING RAILWAY.—TWO PIER GIRDER BRIDGE OVER CANAL

down of the old bridge, cofferdams for the new abutments, dredging, etc.. The proportions of the concrete used were as follows:

Foundations.....	1.	3.	7.
Backing to abutments and spandrels.....	1.	3.	6.
Arch ring.....	1.	3.	4.

The cost per fong of these proportions work out at \$38.84, total cost per fong in superstructure, including all material, shuttering, cleaning down, etc., corrugated steel and iron, work out at \$56.77 per fong.

**Materials.**—The cement used was supplied by the Green Island Cement Co.; the cost, including freight and insurance, landing and transport charges to the site of the work, averaged \$5.00 (mex.) per barrel.

Bricks were obtained chiefly from the kilns in the Kashing district; stone for concrete, Soochow granite; sand from mile 1 to Chin-kang had to be obtained from the Chusan Islands,—Yellow Ningpo sand—at the Nanking end of the work sand from the Poyang Lake was used.

The following rates for work represent a fair average:—

	Per fong.
Cement concrete, inclusive of cement, including all other materials and labor..	\$22.00
Brickwork in cement including cost of cement.....	32.00
Coursed granite rubble masonry in cement.....	42.00

	Per cub. ft.
Granite Ashlar in copings and bedstones set.....	2.75

Altogether tons 1,885, 5 cwts., 0 qrs., 14 lbs. of built up steel girders have been erected, the f.o.b. prices in England varying from in September, 1904, £9.6.6. per ton, August, 1906, £10.12.6, and January, 1907, £11.10.0, the increase representing a corresponding rise in steel during the period.

The total cost of the bridges per mile works out as follows:

From mile 1 to 56.....	\$19,332.21
From mile 56 to 80.....	16,894.11
From mile 80 to 144.....	10,385.81
From mile 144 to Nanking.....	10,900.00

**Fencing.**—Following the usual custom in China, the main line is unfenced, boundary stones denoting the limits of land acquired, and fencing has been erected only at important stations and yards. The workshop yard at Woo-

sung is enclosed with unclimbable corrugated iron fencing 6 ft. high with wrought iron posts and struts, a similar type being used at the locomotive yard, Shanghai, and the Markham Road storeyards. The Shanghai station approach roads are fenced with unclimbable wrought iron fencing 6 ft. high, while wire fencing has been used with wrought iron posts and straining pillars in conjunction with ditching to protect the railway property. Open pale and arris fencing 5 ft. high has been used for Station platforms, timber from cofferdams, etc., having been economically utilized. The cost per mile including boundary stones and all signs works out at \$169 per mile.

**Electric Telegraph.**—By mutual agreement with the Imperial Chinese Telegraph Administration the main line of posts and wires to Nanking was constructed by the latter administration, the railway paying a proportionate cost of the total according to the number of wires used. All instruments and connections were supplied and fitted by the railway. The instruments used are Open Circuit Morse Ink-writers, P. O. Galvanometers, 4-line lightning conductors and 4-line commutators, the batteries being Leclanche. The cost per mile inclusive equals \$297 per mile.

**Track.**—The permanent way consists of 85 lb. flat footed steel rails 36 foot long, 5½ inches deep, flang 4½ inches wide, head 2½ inches wide, web 9-16 inches thick, steel fishplates 1 foot, 10 inches long, with four bolt holes at 6' centres, steel fishbolts 1" diameter 5½" over all screwed 2½ special hexagonal nuts 1½" over squares by 1½" long with washer stamped on. Wrought iron spikes Chisel pointed 1½", 5 13-16" over all ¾" square. The main line sleepers are of Jarrah 9' 0" × 10" × 5" spaced 14 to a 36 foot rail or 2,060 per mile. Siding sleepers of the same wood 8' 9" × 9" × 5" spaced at 3' 0" centres of 1,760 per mile.

The line is ballasted throughout with bottom ballast consisting of large stones about 12" × 6" × 8" deep, hand packed, the top ballast broken stone to pass a 2" ring; from mile 1 to 144 the ballast is almost entirely Soochow granite brought by boat from the Kinshan and other quarries in the hills the Tai Hu Lake; from mile 144 to Nanking the ballast was quarried from the hills in the vicinity of the Railway and transported by wheelbarrow or on donkeys.

The f. o. b. price of rails in England varied from £4 in October, 1904, (100 miles of rails

were purchased at this price) to £6.7.6 in March, 1906, (100 miles purchased) and £6.12.6 in May, 1907, or 63% higher than the prices ruling in 1904 when both the agents and the author strongly recommended that the whole quantity required for the railway should be purchased.

The sleepers were purchased at rates c. f. i. varying from 6s. 1½d. for the smaller size to 7s. 1½d. s.d. for the larger. The life of a Jarrah sleeper is unknown in this country, but in similar climates 20 to 25 years or even longer is reckoned upon and the writer sees no reason to doubt why with equal climatic conditions and good ballast this period may not be looked forward to here, so that their adoption, though more costly in the first instance than Japanese with a life of 3 to 5 years should in the end prove a most profitable investment.

All sleepers were machine drilled for spikes before being sent out of the store yard, the machine being belt driven by a 12 H. P. portable steam engine.

The cost of the ballast varied considerably in proportion to the transport, the following are fair average rates:—

Mile 0 to 56. \$1.40 per ton placed on bank (= \$5.60 per cub. fong).

Mile 56 to 80. Bottom Ballast delivered in stacks about 3 miles apart \$3.92 per cub. fong, Top Ballast \$4.32

Mile 80 to 116. Bottom Ballast \$4.20 per cub. fong, Top \$4.60 per cub. fong delivered at Depots; placing on bank \$1.50 per fong.

Mile 116 to 134. Ballast stacked continuously in cess. Bottom \$5.60, top \$6.00.

Mile 134 to 137. Bottom Ballast on bank to template \$6.15 per fong, top 4 fongs per 100 on formation, remainder on cess, \$6.65 per fong.

Mile 137 to 141. Bottom \$6.20 per fong, on bank to template, Decauville supplied. Top in Depot \$5.30 per fong.

Mile 141 to 144. Bottom on bank to template \$7.00, Top along cess \$7.00.

Mile 144 to 193. Average Bottom and Top Ballast \$5.40 per fong on bank and in Depots.

The capital cost of the permanent way, including all materials, laying, lifting, boxing up and maintaining for an average of six months after opening for traffic, works out as follows:

	Per mile.
Mile 1 to 56.....	\$34,828.49
Mile 56 to 80.....	29,236.85
Mile 80 to 144.....	26,601.60



SHANGHAI-NANKING RAILWAY.—BRIDGE OVER CANAL





SHANGHAI-NANKING RAILWAY.—CHINKIANG STATION, VIEW OF TUNNEL

NOTE.—The mileage is calculated as measured on centre line which partly accounts for the excess in cost per mile from mile 1 to 56 which is due to the greater mileage of sidings and to the extra cost of ballast (about \$4,000 per mile) due to transport charges.

The figures are not yet available from mile 144 to 193, the line having only recently been opened to traffic, but the Author anticipates the rate per mile will not exceed \$26,000.

**Chinkiang Tunnel.**—The only tunnel on the line is situated at Chinkiang, the railway being carried through the Fort Hill on a falling gradient of 1 to 300 into Chinkiang station.

Many trial lines were run with the object of trying to eliminate the tunnel altogether, but it was exclusively proved that it was quite impossible to approach Chinkiang city excepting on a back shunt, the additional cost of which would have exceeded the cost of the tunnel work.

The question of constructing a single or double line tunnel in the first instance was duly considered in 1904, and it was unanimously agreed that a double line tunnel should be built.

The original length of tunnel was fixed at 500 yards, but this was subsequently modified, the approach cuttings at either end being extended, and the tunnel as built measures 1,320 feet from face to face.

The strata passed through for nearly the entire length consists of a shaly sandstone rock having several faults and streaks of graphite with pockets of China clay.

The shaly nature of the rock necessitated the arching of the roof throughout the entire length of the tunnel and also lining the side walls which work was carried out in brickwork in cement; no invert was, however, deemed necessary.

The dimensions of the tunnel section are as follows:—

28' 2 3/16" wide at arch spring, 27' 3" at rail level, height from rail level to soffit of arch 21.2".

The following method of construction was adopted:—

A trial shaft was sunk at about the centre of the tunnel work starting on the 17th July, 1905, rock being encountered at a depth of 50 ft. below surface on the 24th of that month. By the end of August the shaft had reached a depth of 85 ft. or below the crown of the tunnel. Work was started in August on driving the bottom heading at the west face of the tunnel. By the end of September the shaft had reached its full depth, water being encountered at about rail level or 115 ft. from the surface. The shaft was circular, 8 ft. in diameter, lined with brickwork cement for the first 50 ft. to the rock. A bottom heading, 8' 6" at the base and 6' 6" at the top, was commenced in both directions, that east and west, a small amount of water being encountered which was, however, easily dealt with; the rate of progress being at first about 2 ft. in either direction, and 4 ft. a day in the heading from the west face. By the end of the year 1905, 425 ft. of heading had



SHANGHAI-NANKING RAILWAY.—NAZIANG GOODS STATION

been driven. The headings from the shaft and west face met in May 1906, an excavation for a shaft length was immediately commenced. During the next few months the progress of the work was more rapid, the Chinese miners who at first were quite unaccustomed to the work had gained more experience under European supervision. At the end of the year 190 ft. of tunnel had been excavated and lined and break ups started between the shaft and the east face, giving in all 6 working faces. In May 1907 a record length, namely 190' 6" was reported.

The tunnel was completed, the first engine running through, on February 27th, 1908.

It is worthy of record that during the progress of the work not one single fatal accident occurred, this being an exception in the author's experience of tunnel work, even in England, where trained workmen are available.

The whole of the excavation and brickwork in the Tunnel was carried out by Chinese labor under European supervision. Work was greatly facilitated by the adoption of electric lighting.

The fronts are faced with cement concrete blocks with copings and string courses of the same material.

The total cost of the tunnel amounted to \$370,000 which figure may in all probability be slightly reduced by a credit from sale of plant. In this connection it is interesting to note that several tenders from European firms were received in the early stages of the work for the construction of a single line tunnel 500 yards in length, the lowest of which, including cutting approaches, amounted to £60,000 or approximately \$600,000.

**Stations and Buildings.**—It would be quite possible to write a paper on this subject alone, and the author feels that he cannot more than briefly describe the works under this heading.

**Workshops.**—The locomotive erecting and carriage building workshops have been constructed at Woosung near the Whangpoo River bank where the Railway possesses large water frontage, and where a jetty with two lines of rails equipped with shearlegs and crane for

landing heavy materials was constructed in the early stages of the work.

The principal buildings are:—

The erecting shop, 160' long × 140' wide, having 4 lines of pits and one through road for materials, adjoining the machine, smith and boiler shop, 120' × 120'; the power house, 40' × 40'; and boiler house, 46' × 47', being under the same roof. The height of the building from floor to roof truss is 33' 7 1/2". The machine shop is equipped with modern machinery electrically driven, a description will be given later on of the installation. The foundry has an area of 3,200 feet, being 80' long × 40' wide; saw mill 80' × 40'; carriage, repair and paint shop, 160' long × 120' wide; carriage building shop, 120' × 120'; store, 120' × 40'; locomotive superintendent's office, 100' × 45'.

All the buildings are constructed of brick on cement concrete foundations carried on piles, corrugated iron roofing, the erecting, machine and smiths, carriage and paint shops being built with northern lights glazed with Mellows patent glazing bars and quarter rough rolled plate glass.

The roofing is carried on steel stanchions at 40 feet centres in both directions, the intermediate trusses being carried on steel lattice girders. The two 20-tons electrically driven cranes traversing the entire length of the erecting, boiler and machine shops are carried on steel plate girders. An 18-ton hand travelling crane is provided in the carriage repair shop.

The floor of the machine shop is laid with hardwood blocks, the other principal buildings being floored with concrete cement finish.

The cost of the principal buildings was as follows:—

Erecting, Machine, Smith and Boiler Shops, Power and Boiler Houses.....	\$187,535.83
Carriage and Paint Shop.....	49,512.62
Foundry.....	12,051.38
Saw Mill.....	8,581.98
Locomotive Superintendent's Office.....	15,997.97
Store Building.....	13,055.57



**Stations.**—There are 37 stations between Shanghai and Nanking inclusive, which may be briefly classified as follows:—

1. Passing stations, provided with loops 2,500 feet in length for crossing trains and up and down passenger platforms, there are 25 of these; of this total 9 are provided with locomotive water supplies and ashpits, and 4 are engine changing stations with running sheds, turntables, coal stages, etc., 10 are goods stations with goods sheds and platforms, offices siding accommodation, 3 of these in addition have cattle docks and pens, and 3 stations are provided with 60-ton weighbridges.

2. Flag stations, provided with one platform and buildings commensurate with traffic requirements, no siding or passing accommodations. There are 12 of this type.

**Station Buildings.**—Three types [of buildings have been generally adopted.

Those erected at stations where the passenger traffic is considerable consist of a single storied building with 6 rooms, namely, a general hall, booking office and telegraph room, station master's office, post office or goods agent, and two small waiting rooms.

The floors of the buildings in all cases have been fixed at platform level, which is carried up 2' 3" higher than rail level. The corrugated iron roofing was carried out on either front of the building to form a verandah.

There are five of this type of building between mile 1 and 144. The cost varied in accordance

waiting area between the two blocks of buildings being greatly appreciated by the Chinese travelling public.

The average cost of the one-storied building works out at \$22,047.32.

Special buildings have been designed for Shanghai and Soochow.

At Shanghai a new passenger building, with four floors for general offices, is being erected from design prepared by Mr. Charles E. Barry, F.R.I.B.A., of London.

The work is not sufficiently advanced to give details of cost.

The main walls of the building have been carried up to first floor level, the foundations of this work having been done departmentally. The building to first floor level to a height of 21 ft. has been faced on three sides with Tsing-tao granite. The foundations are in cement concrete on piles. A contract has recently been let to a native contractor to complete the building.

Steel stanchions supporting the girders carrying the main walls above the first floor are founded on armoured concrete on piles. The whole of the building will be of fire proof construction with steel joists and concrete floors.

The passenger platforms at Shanghai have been completed and consist of one island platform 1,450 ft. in length, and shorter platform forming one side of the bay 650 ft. long. There will be an open space in front of the building 100 ft. wide, and it is proposed to cover this

Electric Tramway runs past the station, and when the service is in working order will prove of great benefit to railway passengers.

The other principal buildings which have been erected at Shanghai are the locomotive running shed, 220' long × 100' wide, with accommodation for 12 main line engines, the shed is provided with continuous pits and four roads fitted with hydrants for washing out boilers, foreman's offices, running room, mess room and quarters for the staff, together with a machine shop for small repairs. The roof is of timber with unequal sided trusses, the northern lights being glazed, the other side covered with corrugated iron. The whole of the foundations were in cement concrete on piles.

The total cost of the running shed amounted to \$62,455.97.

The carriage cleaning shed, 370' long × 61' 3" wide, to hold 12 main line coaches, is provided with water troughs heated by steam from a locomotive boiler with 3 lines of pits for the entire length of the building; which is constructed of timber on a brick plinth with wooden columns carrying the roofs, the latter being of corrugated iron. The flooring is of cement concrete, cement finished.

The total cost was \$28,548.18.

The electrical power house, including boiler house and store offices 132' long × 46' wide,



SHANGHAI-NANKING RAILWAY.—DEEP WATER TERMINUS AT WOOSUNG

with the depth below platform level from \$7,973.65 to \$12,241.98; the average for the five buildings being \$8,583.

One type is practically half size of the building already described, being designed so that it can be easily extended should circumstances require. It contains 3 rooms, namely, a general hall, booking office, station master's and telegraph office.

Ten of these buildings have been erected at a cost varying from \$3,988.90 to \$9,943.94, the average for the ten being \$6,050.

The last is a type which has been used at Wusieh, Changchow and Tanyang with slight modification, but at these stations only a single story has been erected; the building illustrated has been erected at Nanking, the upper stories being used for staff quarters.

The author considers this building most suitable for this country, the large covered

area and one of the platforms with an awning roof.

The platform walls are of brickwork in lime corbelled out at the top to support the concrete coping which projects 12" from the face of the wall being 2' 3" above rail level. These copings were cast in moulds at Soochow at a cost of 60 dollar cents per cubic ft. They are 3' long × 2.9" wide, 5" thick at the back, and 4½" at the face, the upper edge of which is bull nosed. They are fluted on the surface to prevent slipping. The type of wall and coping has been adopted at the majority of stations between Shanghai and Chinkiang. The total cost of platforms at Shanghai, inclusive of all filling, walls, and coping was \$16,612.22.

Considerable work had to be carried out in making new approach roads to the Station, and this has been done so as to facilitate in every way easy access for traffic. The Shanghai

built of brick with steel truss roofs covered with corrugated iron. The dynamo room has a tiled floor.

Cost of building \$19,219.60.

The usual quarters have been provided for the native and foreign staffs.

**Soochow Station.**—This building was designed to accommodate the very considerable passenger traffic at this important station.

It is a one-storied building and consists of a central concourse area 63' long × 35' wide, with 6 ticket windows and contains on one side the usual offices, namely, telegraph, station master, booking office, parcels, strong room, dispensary, medical officer, porters and guards' room, the latter four rooms being entered from a separate passage way. On the other, or west, side of the building official waiting rooms, ladies' wait-



SHANGHAI-NANKING RAILWAY.—ARCHED BRIDGE OVER CANAL





SHANGHAI-NANKING RAILWAY.—WUSIEH GOODS DEPOT



SHANGHAI-NANKING RAILWAY.—CONCRETE ROADWAY BRIDGE AT SOOCHOW



SHANGHAI-NANKING RAILWAY.—THE RAILWAY SCHOOL AT SOOCHOW



SHANGHAI-NANKING RAILWAY.—TWO PIER GIRDER BRIDGE OVER CREEK

ing room, refreshment room and kitchen are provided.

The foundations are in concrete and the main walls carried up on arches to below platform level.

The building is in brickwork in lime, the exterior faced with blue brick with cast concrete plinths, chamfered quoins, moulded string courses and copings. The interiors of the course area and corridors are faced in red brick-

work, pointed in white lime mortar, the other rooms have plaster walls and ceilings. The roof is covered with red tiles.

The total cost of this building, inclusive of deep foundations, was \$71,532.

The station is provided with two platforms 850 ft. in length, the up platform being an island one.

A subway under the main line between the two platforms is provided, this work is carried out in concrete the rails being carried on through steel girders. The platforms are carried over the subway on old steel sleepers bedded in concrete. The cost of this subway complete was \$7,191.45.

The whole of the station site had to be raised four or five feet the land having originally been low lying under paddy.

Considerable expense had to be incurred in constructing a macadamised road approach to the station building, the cost has, however, been fully justified, more particularly owing to the fact that the local authorities of Soochow have extended their maloo from the Cheng Men Gate and joined up with the railway road, it being now possible to drive in a carriage from the railway station right round the west and south walls of the City, a distance of nearly 6 miles.

At all stations permanent brick quarters have been provided for the station staff at an average cost of \$1,850 per building. At some of the principal stations overhead footbridges have been built, the steel lattice bridge at Wusieh was erected at a cost of \$3,452.98, at the other stations timber bridges have been built: average cost \$320 each.

*Station Machinery.—Locomotive Water Supply.*

At Shanghai station four cast iron tanks each of 10,000 gallon capacity have been erected on a brick tankhouse, the bottom of the tanks being 40 feet above rail level; water is taken from the Shanghai Water Co., by a 9' cast iron main. A 9' main from this tank supplies the pillar water cranes at the engine shed and the hydrants and other service in the yard. A 3,500 gallon parachute water tank has been erected at the NE. end of the station to supply the engines on the Woosung Branch, these tanks discharge their contents in 1½ minutes.

At the smaller watering stations, 10,000 gallon tanks have been erected supplied from settling tanks connected by pipe to nearest creek, the water being pumped into the tank in some instances by hand, but at the larger stations as Wusieh, Changchow, Chinkiang and Nanking by direct acting self contained steam pumps with vertical boilers, the f.o.b. price of these being £126.5.0. each complete.

At Soochow, where current is available an electrically driven pump has been supplied.

At all watering stations other than engine changing where the engines are supplied at the shed by water cranes, 3,500 gallon parachute tanks are erected by the ashpits at one end of each platform.

TURNABLES are 60 ft. diameter of the central balance descriptions founded on cement concrete with race walls of the same material; the f.o.b. price was £373, and including erection and foundations averaged \$6,000.

*Signaling.*—Distant and home semaphore signals have been erected at all passing stations





SHANGHAI-NANKING RAILWAY.—INTERIOR OF CAR SHOPS AT WOOSUNG

controlled by levers from a locking frame in the station building, the home signals being interlocked and all facing points handlocked and detected; this work has been entirely done locally, chiefly at Soochow under the supervision of Mr. A. C. Clear, Executive Engineer, who has received able assistance from Mr. Yang, Assistant Engineer.

Owing to the nature of the country from Shanghai to Nanking, hardly without exception the only possible sites were in low swampy ground which had to be raised, increasing the cost of foundation work generally.

Exclusive of Woosung shops and Shanghai the total cost to date of stations and buildings of all descriptions, such as staff quarters, engine sheds, godowns, platforms, passenger buildings (including all fixtures and furniture), station machinery with points and crossings, water supplies, weighbridges, signals, etc., etc., was as follows:—

		Per mile.
Mile 1 to 56.....	\$496,904.82 =	\$9,034.62
Mile 56 to 80.....	153,335.93 =	6,389.00
Mile 80 to 144.....	230,747.10 =	3,605.42
Mile 144 to 193.....	330,500.00 =	6,610.00

These figures are not final as there still remains some work of minor importance, however, to complete.

*Plant. — Electrical Installations. — Woosung Workshops.*—Erecting and small Machine Shops.—10 H. P. motor 600 R. P. M. belt driving on to countershaft running miscellaneous machines, such as milling, drilling, capstan and key way cutting machines, bolt and brass finishers, lathes, emery wheels and universal grinder.

25 H. P. motor 550 R. P. M. belt driving on to main shaft driving shaping and planing machines, drillers and screw cutting lathes and hydraulic wheel press.

27 H. P. variable speed motor 750-1000 R. P. M. driving through raw hide gearing to large wheel lathe.

22 H. P. variable speed motor 500-1000 R. P. M. direct coupled to countershaft of tyre grinding machine.

*Smithy.*—25 H. P. motor 550 R. P. M. and 10 H. P. motor 600 R. P. M. driving on to main shaft driving, plate roller, plate bender, band saw, punching and shearing machines, radial drill and blowers.

*Saw Mill.*—20 H. P. motor 550 R. P. M. belt driving on to countershaft running wood planer, band and circular saws and pattern makers lathe

The whole of the above motors are Dock Kerrs 4 pole shunt wound semi-enclosed type 220 volts, working in conjunction with Reyeolle fool proof starters.

The erecting shop and smithy are served by two 20-ton electric cranes of 3 motor type, E. C. C. pattern series wound motors having 15 H. P. motors for elevating, 8 H. P. for travelling and 4 H. P. for cross traversing, each being regulated and controlled through K type controllers.

There are about 500 16 C. P. lamps installed in the various buildings and 14 arc lamps, while the yard is provided with 5 circuits each of four 15 ampere Angold open type arcs.

The whole of the internal wiring is run in heavy screwed steel conduit and so far after 15 months working have not been troubled with

condensation, though every precaution has been taken to eliminate this defect so prevalent in climates such as this. The whole of the outdoor wiring is carried out with solid bare copper wires run on treble shed insulators, utilizing wires of from No. 1 S.W.G. to No. 9.

*Power House.*—The boiler house is equipped with 2 Yates and Thom Lancashire boilers 28' long x 7' 6" diameter, designed for a working pressure of 120 lbs. per square inch.

In the engine room are two 150 K. W. Compound Belliss engines running at 425 R.P.M. each direct coupled to a compound wound 220 to 420 volt Bruce Peebles dynamo capable of giving out 680 amperes.

The control and distribution is controlled by a Kelvin & White switchboard, the power circuits being distinct from the lighting circuits, each sub circuit being protected by an automatic circuit breaker on one pole and a fuse on the other, while each dynamo panel is fitted with a maximum and reverse circuit breaker, on one pole and a fuse on the other these machines can be run in parallel, though at present the load does not require it.

There has just been erected a new saw mill which will be fitted with a log frame saw driven by a 12 H. P. motor of similar design to those above.

Total cost of installation including boilers, engines, dynamos, etc., and all labor complete, \$77,935.58.

*Shanghai Terminus and Goods Yard, Lighting.*

—In the power house are installed 2 Penman Lancashire Boilers 2" long x 7' 6" diameter working at a pressure of 120 lbs. to the square inch, working in conjunction with a Greens economiser electrically driven, supplying steam to two 85 K. W. Compound Belliss engines running at 425 R.P.M. each direct coupled to a E.C.C. compound wound interpole dynamo generating at a pressure of 440 to 460 volts.

As we shall be distributing our energy from here on the 3 wire system, a 66 K. W. Balancer is erected to compensate for the out of balance.

The approach road, platforms, goods and shunting yards are illuminated by circuits of eight 10 ampere Santoni flame lamps in series, capable of burning about 16 hours without renewal of carbons.

The carriage and running sheds are lit by means of 8 ampere Santoni enclosed arcs two in series on 220 V.

The work in this district is still proceeding and when the new station buildings and goods



SHANGHAI-NANKING RAILWAY.—CAR AND LOCOMOTIVE SHOP





SHANGHAI-NANKING RAILWAY.—WOOSUNG CAR SHOPS

sheds are completed will have a lamp connection of about 800 16 C.P. lamps 64 arc lamps.

Ample room is provided in the boiler and engine rooms for extensions, but at present the maximum load is only about 35 to 40 K.W.

Adjoining this power house there is now in course of construction of head trains lighting depot where all erection and maintenance of the cells and dynamos used in train lighting will be carried out, also the testing of dynamos and charging of cell's.

Total cost to date \$65,759.68.

*Soochow.*—The power house here is equipped with two 25 N.H P. Ruston Proctor Loco. type boiler, 120 ins. per square inch, supplying steam to a 30 K.W. Compound Belliss engine direct coupled to an E.C.C. compound wound multipolar interpole generator supplying current at a pressure of 220-230 volts. Room is provided for an additional set, though for the present it is not proposed to be fitted.

The current is distributed from a Crompton switch board of their standard design for 5 feeders

The work here is in progress of erection, though we have fitted and in operation the station buildings with incandescent lamps equal to about 200 16 C.P. while the approach road is illuminated by about 20 32 C.P. glow lamps.

The running shed and staff quarters are to be illuminated electrically and an electric pump is provided for the tank house.

*Rolling Stock.*—Locomotives. Three types are in use on the Railway.

A Class. Tank engines, 6 wheel coupled, 18" cylinders, 26" stroke, 4' 9" wheels. Full working weight 74 tons.

B Class. Goods Tender Engines, 6 wheel coupled, 18" cylinders, 26" stroke, 4' 9" wheels. Full working weight 102 tons.

C Class. Passenger Tender Engines, 4 wheel coupled, 18" cylinder, 26" stroke, 6' 7" wheels, full working weight 98.35 tons.

*Coaching Stock.* All the Coaching Stock is of the 4 wheel bogie type, the following are the leading dimensions:—

	Feet.	Ins.
Length of underframe.....	68	0
Width over sole bars.....	9	5
Centres to centres of bogies.....	47	0
Wheel base of bogies.....	19	0
Diameter of wheels.....	3	6 1/2
Length of body over mouldings...	68	0 1/2
Width of body outside.....	10	0
Height from rail to floor level.....	4	5
Height from rail to coupler centre (loaded).....	3	6
Height from rail to top of carriage..	14	0

The carriages are entered at the vestibule ends and there is through communication from end to end of all passenger trains.

The buffing and draw gear is of the Janney Central Coupler type with buffing plates, etc. All cars are fitted with the Westinghouse Brake with improved valves and are electrically lighted by the Stones system; steam heating is provided from the engine. There are three classes, first, second and third. The first class Corridor Kitchen Cars have seating accommodation for 48, composite carriages for 50 first class and 42 second class, third class for 100, Composite Brake and Luggage Vans for 60, 3rd class and Composite Brake and Mail Vans for 40, 3rd class.

*Wagon Stock.*—Three types of goods wagons have been adopted.

All steel medium sided 4 wheel bogie wagons on 38 feet under-frames, 35 tons capacity.

All steel covered goods 4 wheel bogie wagons on 38 feet under-frames, 30 tons capacity

All steel 4 wheel wagons on 18 feet under-frames, 15 tons capacity.

All steel bogie Brake Vans on 38 feet under-frames.

All stock is equipped with the Westinghouse Brake.

The following is the present equipment of the Railway excluding the old Woosung Stock, new stock building at Woosung, and construction locomotives:—

- 2 A. Class Engines.
- 10 B. Class Tender Engines.
- 12 C. Class Passenger Engines.
- 5 First Class Kitchen Cars.
- 5 First and Second Composites.
- 18 Third Class Cars.
- 5 Third Class Compo. Brake & Luggage Vans.
- 5 Third Class Compo. Brake & Mail Vans.
- 150 Medium sided Wagons.
- 40 Covered Goods Wagons.
- 50 4-Wheel Wagons.
- 12 Steel Brake Vans.

The whole of the Locomotives, Carriage and Wagons stock was designed and passed for shipment by the Consulting Engineers.

*Electric Lighting of Coaching Stock.*—The whole of the new rolling stock is equipped on the Stone's patent system of train lighting.

Briefly each coach is fitted with a dynamo and two batteries of storage cells, while stationary the lamps are lit off the cells and when running the dynamo supplies current to the lamps through a small resistance, one of the batteries at the same time receiving a small charge, while the other acts as a regulator to the lamps, our voltage being 24 volts on the lamps.





SHANGHAI-NANKING RAILWAY.—CHINGKIANG TUNNEL ENTRANCE

The principal feature of the system is the dynamo and its method of suspension, the dynamo being suspended by one corner of its frame by means of an adjustable link by which the dynamo can be drawn closer to, or taken further away from the pulley on the driving axle, so permitting of the machine being set for any required amount of current, this also prevents its exceeding that amount however the speed may increase.

The suspending link is adjusted so that the driving belt draws the dynamo out of the diagonal position in which it would naturally hang, thus putting a definite tension on the belt just sufficient to absorb power equivalent to the amount of electricity required. From this it will be seen that when the pull on the belt exceeds the weight on the belt (due to the increase of speed of the train) the dynamo will be automatically drawn towards the driving pulley on the axle (by virtue of its one sided suspension) and so allow the belt to slip whilst the armature will continue to revolve at its normal speed.

The dynamo always supplies current in the one direction, irrespective of which direction the coach may be travelling in, this is effected by means of a rocking arm switch.

When the dynamo reaches a certain speed, a centrifugal governor automatically connects first the dynamo field to the regulating battery and then the cells to be charged to the brushes of the dynamo.

Immediately this occurs and as the charging of the batteries commences, a resistance of correct value is connected in the lamp circuit and so prevents the lamps being overrun, due to the extra voltage required in charging the cells.



THE LUXURY OF THE SHANGHAI-NANKING RAILWAY EXTENDS TO THE ROADBED, AND THE WOODEN SLEEPERS ARE AT TIMES HELD DOWN BY THE HUMAN VARIETY MUCH TO THE DISTASTE OF THE ENGINE DRIVERS, WHO MUST STOP THE TRAIN TO EXPLAIN TO THE COUNTRYMEN THAT THE TRACK IS NOT A FREE LODGING HOUSE.

The rocking arm is also in connection with a see saw switch which changes over the battery with the direction of running, so that the charged battery becomes the regulating battery.

The act of switching off the car lights puts sets of batteries in parallel, when half the generated current passes half through each battery.

All the dynamos are ring oiled.

At the moment of writing there are 37 new coaches and one old type coach converted into an Inspection coach all of which are fitted each completely independently equipped aggregating just over 800 lamps of 8 and 5 C.P. and about 40 fans, the fans being fitted in the dining cars and 1st and 2nd Composites.

With regard to the old Woosung line stock, these have been made into 2 block trains each of 4 coaches, and lit up on the block train method, one brake van fitted with dynamo and cells as in the other coaches, utilizing flexible connections linking up with the roof wires of the 3 remaining coaches of that train.

It might be added that there are just over 1,000 storage cells already in daily operation in connection with this work.

The machines in use on the dining and composite cars, also block trains, are capable of giving out 80 amperes, while those of the thirds are designed for 40 amperes.

## SUMMARY OF COST BY MAIN HEADS AND COST PER MILE WITH PERCENTAGES

Main Head.	Total cost to end of Feb. 1908.	Cost per Mile % on Single Line basis.
	Tls.	Tls.
I. PRELIMINARY EXPENSES.....	18,648.89	81.08 .122
II. LAND.....	1,836,917.74	7,986.60 11.990
III. FORMATION (Earthworks, Double line Tunnel, Creeks, Roads Tls. 1,567,262.37. Deduct 2-5 cost Earthwork Double line to Soochow Tls. 156,572.47.....	1,410,689.90	6,133.43 9.208
IV. BRIDGEWORK (Major and Minor Bridges, Culverts, Drains Tls. 1,934,375.71 Deduct 5-12 cost Bridgework Double line to Soochow 323,411.82.....	1,610,963.89	7,004.19 10.514
V. FENCING.....	38,922.93	169.23 .254
VI. ELECTRIC TELEGRAPH.....	51,692.17	224.75 .338
VII. TRACK.....	4,811,536.38	20,919.72 31.405
VIII. STATIONS AND BUILDINGS, Buildings and Fixtures, Station Machinery, Furniture Workshops and Stores, etc.....	1,553,891.98	6,756.05 10.142
IX. PLANT, Construction, Locomotive, Carriage & Wagon Tools and Plant, Workshop Machinery and Electrical Plant, Engineering Tools and Plant, Steam launches, etc., printing.....	392,864.62	1,708.10 2.564
Locomotive, Carriage and Wagon Rolling Stock.....	2,026,120.45	8,809.22 13.224
X. GENERAL CHARGES, Engineering (including cost of survey) Accounts, Stores, Direction, Medical, Locomotive, Traffic, Chinese Department, Miscellaneous.....	1,568,862.90	6,821.15 10.239
	15,321,111.80	66,613.52
Add 1-5 cost of Earthwork Soochow Double line 156,572.47.....		
Add 5-12 Bridgework Soochow Double line 324,411.82.....	479,984.20	2,082.54
TOTAL FINAL CONSTRUCTION HEADS.....	15,801,096.09	68,696.06
Deduct 2-5 cost of Earthwork. Deduct 5-12 cost of Bridgework Soochow Double line.....	479,984.20	2,082.54
	15,321,111.80	66,613.52
ADD.....		
Commission purchases England.....	219,181.19	952.96
Commission purchases China.....	111,808.45	486.12
Nanyang College Donations.....	10,000.00	43.48
Exchange account.....	56,151.99	244.14
Likin confiscation accounts.....	3,825.64	16.64
Land exchange account.....	9,247.34	40.21
Total Taels.....	15,731,326.41	68,397.07
MILEAGE, including Main Line Loops & Sidings, but excluding the Woosung Section... 230 miles of Single Line.		Taels 68,397.07
Average cost per mile, including land, construction and equipment.....		£9,661 per mile
@ an average rate of exchange of Tls. 7.08 per £ =.....		Tls. 15,731,326.4
Average cost per mile, excluding land and rolling stock.....		
Land.....	Tls. 1,836,917.74	
Rolling Stock.....	2,026,120.45	3,863,038.19
		Tls. 11,868,288.22 =
		Taels 51,601.26
@ an average rate of exchange of Tls. 7.08 per £ =.....		£7,288 per mile.

The above figures represent a fair statement of expenditure under construction heads proper. During the period of the work exchange fluctuated considerably and for the greater part of the time detrimentally against bringing sterling from Europe. The original estimates were based on Tls. 8 per £ sterling, but the average rate has been Tls. 7.08, or nearly 9% higher.

The writer commenced this paper by stating that the Loan Agreement authorized a loan not exceeding £3,250,000 at 90; the first instalment (£2,250,000) was issued at this rate of discount, but concessions were subsequently made and the second and last instalment, £650,000 was issued at 95½.

The total issue of loan funds to date being £2,900,000 nominal on which interest is payable, particulars being as follows:—

£2,250,000 @ 90	= £2,025,000	Discount. £225,000
£650,000 @ 95½	= 620,750	
£2,900,000	£2,645,750	£254,250

(= £1,105 per mile of Single line)





SHANGHAI-NANKING RAILWAY.—INTERIOR OF FIRST AND SECOND CLASS CAR. BUILT BY THE METROPOLITAN AMALGAMATED RAILWAY CARRIAGE CO., LTD.

Leaving the net sum of £2,645,750 available, of this amount the following sums were earmarked under the terms of the Agreement.	
Woosung Railway.....	Tls. 1,000,000.00
Land.....	1,836,917.74
Loan Interest from Flotation to March 31, 1908.....	3,055,782.16
	<hr/> Tls. 5,892,699.90

at exchange 7.08 = £832,302.

Equivalent to £3,619 per mile of single line.

*Generally.*—In carrying out the work every effort was made to standardize details and working parts as far as possible. The importance of this policy is fully recognized in railway construction in Europe and other foreign countries, and should be particularly emphasized in this country, where railways are practically in their infancy, so as to obviate the necessity which otherwise would exist of stocking a multiplicity of spare parts for repairs.

*Organization.*—The construction of the railway was carried out departmentally, the work being divided up into districts under the charge of an executive engineer, with assistant engineers in charge of sub-divisions.

The first division, from Woosung to mile 1, on the main line, was under the charge of Mr. M. R. Sinclair.

From mile 1 to 56, from the commencement of work in 1904 to March, 1906, under the charge of Mr. G. W. Eves, Assoc. M. Inst. C.E. Clear being appointed on the latter's retirement to take up an appointment on the Canton-Kowloon Railway.

From mile 56 to 144, Mr. F. Grove, M. Inst. C.E., was in charge as executive engineer until May, 1907, when he was appointed engineer-in-chief of the Imperial Chinese Section of the Canton-Kowloon Railway; Mr. B. T. B. Boothby, Assoc. M. Inst. C.E., being promoted executive engineer until the 16th January of the present year, when he left the service to join Mr. Grove's staff.

From mile 144 to Nanking, including the tunnel, the executive engineer was Mr. J. G. Buckley, M. Inst. C.E.

Work was generally let by petty contract at schedule rates, day work being as far as possible avoided.

All rolling stock was erected at the Woosung Shops under the supervision of Mr. E. J. Dunstan, M. I. Mech. E., the electrical installations by Mr. W. J. Grey, electrical engineer.

The accounts department was under the supervision of Mr. E. R. Morriss, chief accountant and Mr. H. Middleton, deputy accountant.

Until the arrival of Mr. A. W. U. Pope, the present traffic manager, the traffic department from 1905 until the end of 1906 was under the charge of Mr. H. P. Winslow, the present deputy traffic manager.

The stores department, from the commencement of the work until December last, was under the late Mr. C. F. Moule.

The author has to record with deep regret the following deaths which occurred among the staff during the construction work:

Messrs. R. Wells and W. L. Allan, assistant

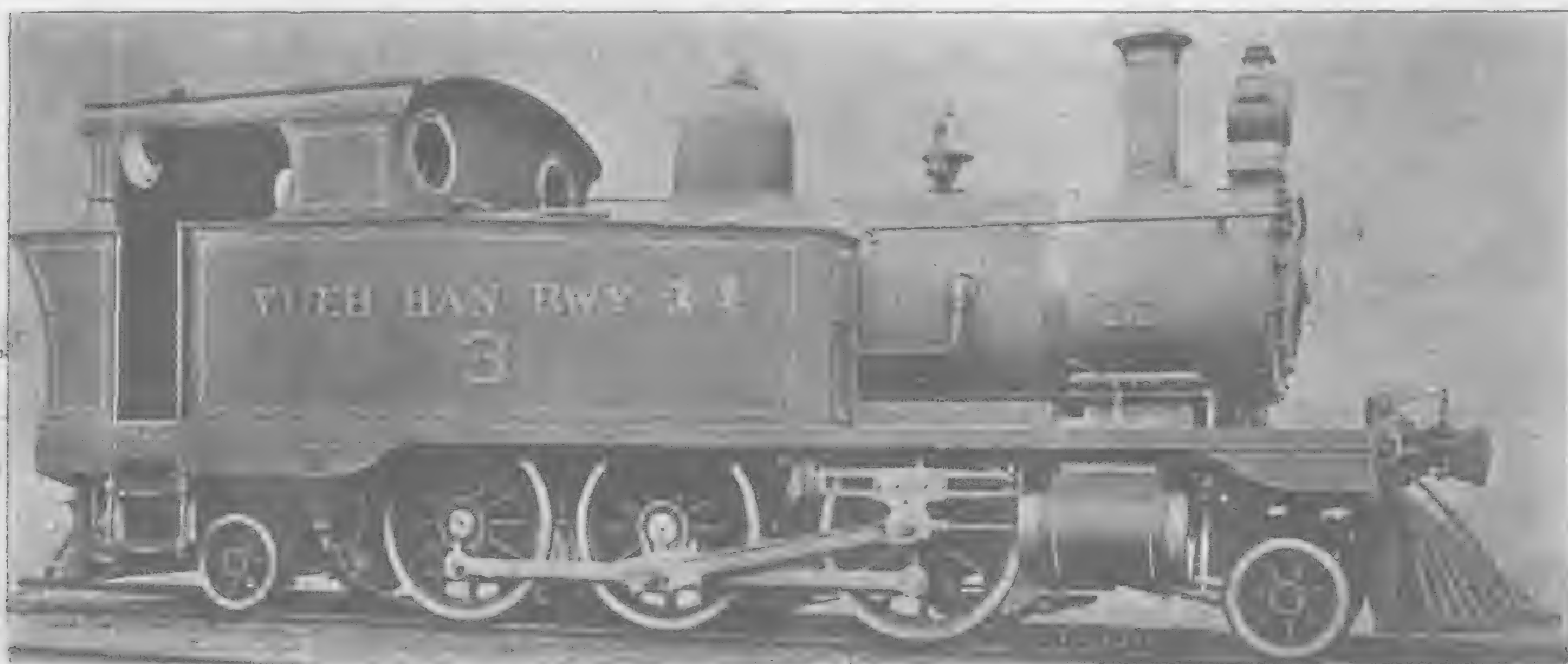
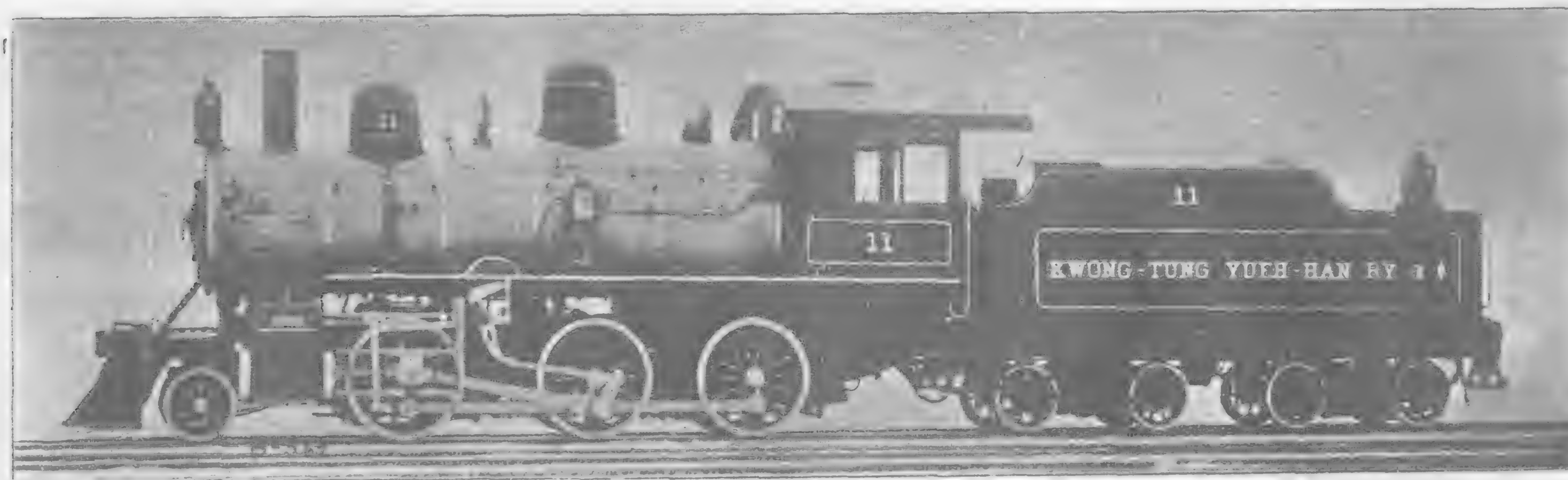
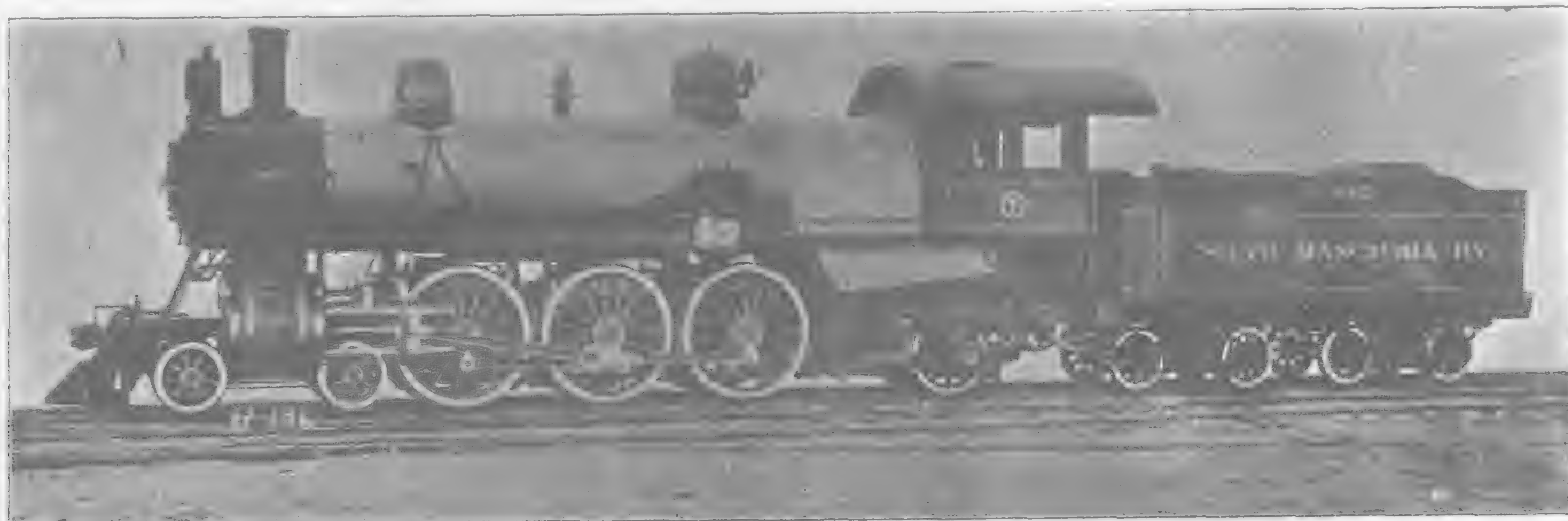
engineers, Mr. H. J. Easterbrook, assistant accountant, Mr. A. C. Walker, chief draughtsman, and Mr. C. F. Moule, chief storekeeper.

In conclusion, the author wishes to record his personal thanks to the commissioners, the joint agents, the consulting engineers, and members of all departments, both Chinese and foreign, for the cordial help rendered in carrying out the construction work of the Railway, and also to thank the members of his own staff, particularly Mr. C. G. Golding, Mr. J. S. Lee, chief draughtsman, Mr. W. N. Chow, the chief Chinese draughtsman, and the Chinese staff of the drawing office for the assistance they have given him in preparing this paper, and the diagrams in connection therewith. The author is also indebted to Mr. H. Middleton, the acting chief accountant, for the help given in connection with the figures contained in the summary quoted in the paper.



BRIDGING THE GRAND CANAL ON THE SHANGHAI-NANKING RAILWAY





TYPES OF AMERICAN LOCOMOTIVE COMPANY, IN OPERATION ON CHINESE RAILWAYS



# NANKING CITY RAILWAY

From Terminus of Shanghai-Nanking Railway on the Yangtze, to Nanking City

This line is a Chinese provincial government concern and is known as the Viceroy's railway from the fact that Viceroy Tuan Fang of the Liang Kiang Provinces built it out of the provincial funds. A section of it, extending from the Drum Tower in the city to the terminus of the Shanghai-Nanking Railway at Hsia Kuan, was opened to traffic on Aug. 26th 1908, and the line was subsequently completed up the Chung Cheng Chieh beyond the Viceroy's Yamen. It has recently been extended over the creek at Hsia Kuan down to within a few yards of the south bank of the Yangtze where a fine terminal station is being erected its total length being about 7½ miles. The line has been well constructed by a British engineer, Mr. Leeme, and is well managed and may be regarded as an eminently successful undertaking. Its earnings on account of passenger traffic

are considerable. The total cost of the line was about Taels 300,000.

The future prospects of the line while it remains at its present length will depend in the main on the conveyance of passengers. It is true that the difficulty of transport between the business quarter, which is in the southern part of the city, and the river 7 miles away, is obviated by the line and that an expansion of trade might therefore be looked for but it is probable that such expansion would be more likely to result from an extension of the line beyond the city in the south-eastern districts, which produce the chief articles of export, such as silk and various agricultural products. The road is of standard gauge; passenger locomotives being employed to haul a train of six coaches. There are two American locomotives from the Brooks Locomotive Works at Dun-

kirk, N. Y., U. S. A. The passenger cars were purchased from the Shanghai-Nanking Railway, and were formerly in use on the old Woosung line. They were put together at the Woosung shops of the S. N. Railway. They are fitted with Janney couplers and Westinghouse Air Brakes, with Laycock seats and fittings.

First, second, and third class passenger coaches are in use; and the fares for the whole distance are 60, 30 and 15 cents, Mexican, or approximately 30, 15 and 7½ cents gold; with proportionate reductions for intermediate distances.

As an evidence of changed conditions in China the two thousand ricksha and carriage coolies, although partially deprived of a means of livelihood, peaceably accept the improved conditions although the local authorities apprehended some hostile demonstration on the opening of the road.



NANKING CITY RAILWAY.—AMERICAN (BROOKS) LOCOMOTIVE



INTERIOR VIEW OF COACH





NANKING CITY RAILWAY.—TRAIN AND STATION ON OPENING DAY



NANKING CITY RAILWAY.—MAIN STATION AND OFFICE AT NANKING



NANKING CITY RAILWAY.—OPENING IN THE CITY WALL FOR THE RAILWAY



NANKING CITY RAILWAY —TYPE OF HIGH SIDE GOODS WAGONS



NANKING CITY RAILWAY.—AMERICAN BROOKS LOCOMOTIVE AND 3RD CLASS CAR BUILT AT THE WOOSUNG WORKS OF THE SHANGHAI-NANKING RAILWAY



# THE TSITSIHAR LIGHT RAILWAY

When the Russians constructed the Chinese Eastern Railway through Northern Manchuria, true to their custom, they purposely ran their line several miles from the cities or towns, with the idea of attracting the trade and commerce into the railway zone over which they claimed administrative control.

Tsitsihar, the provincial capital of Heilungkiang Province and the seat of the Governor, is a highly prosperous and important mart, but the Russians regardless of the benefits which might accrue to their line, by coming within a reasonable distance of the town left it 18 miles to the North. Communications between the New Tsitsihar to the old capital was difficult in summer time over the deep muddy roads, and in winter, the bitter northern blizzards were the cause of many deaths by freezing for the unprepared traveller in the 18 mile stretch. In addition, the active Hunghutze bandits did a thriving business holding up and looting travellers over the road. So if the Russian Railway would not come to Tsitsihar, the Chinese would build one for their own convenience, and accordingly the Governor of Heilungkiang entered into a contract with the firm of Telge & Schroeter of Tientsin to construct the road and supply the materials. The road was opened for traffic in August last. It is about 18 miles long, of meter gauge, with 30 lb. rails. There are three stations, with appropriate sheds and shops for such a small road.

The locomotives are 10 ton engines, 9" cylinder 12" stroke, and are rather powerful for their size, being capable of hauling a 100 tons load at a speed of about 17 miles per hour.

The rolling stock consists of freight cars of 6 tons capacity, and of 1st, 2nd, and 3rd class passenger cars. For the personal convenience of the Governor and other high officials an elegantly fitted up saloon car has been provided, a photo of which is attached herewith.



HIS EXCELLENCY CHOU SHU-MU,  
GOVERNOR OF HEILUNGKIANG PROVINCE  
(TSITSIHAR)

All rails, locomotives and rolling stock have been manufactured by Messrs. Orenstein & Koppel of Berlin, while Messrs. Telge & Schroeter of Tientsin have been the contractors.

Mr. W. R. T. Tucky was the engineer in charge.



TSITSIHAR.—THE YAMEN OF THE GOVERNOR OF HEILUNGKIANG PROVINCE



TSITSIHAR.—THE CAPITAL OF HEILUNGKIANG PROVINCE. MAIN STREET



TSITSIHAR LIGHT RAILWAY.—6 TON FREIGHT CAR



A STATION ON THE C. E. RAILWAY

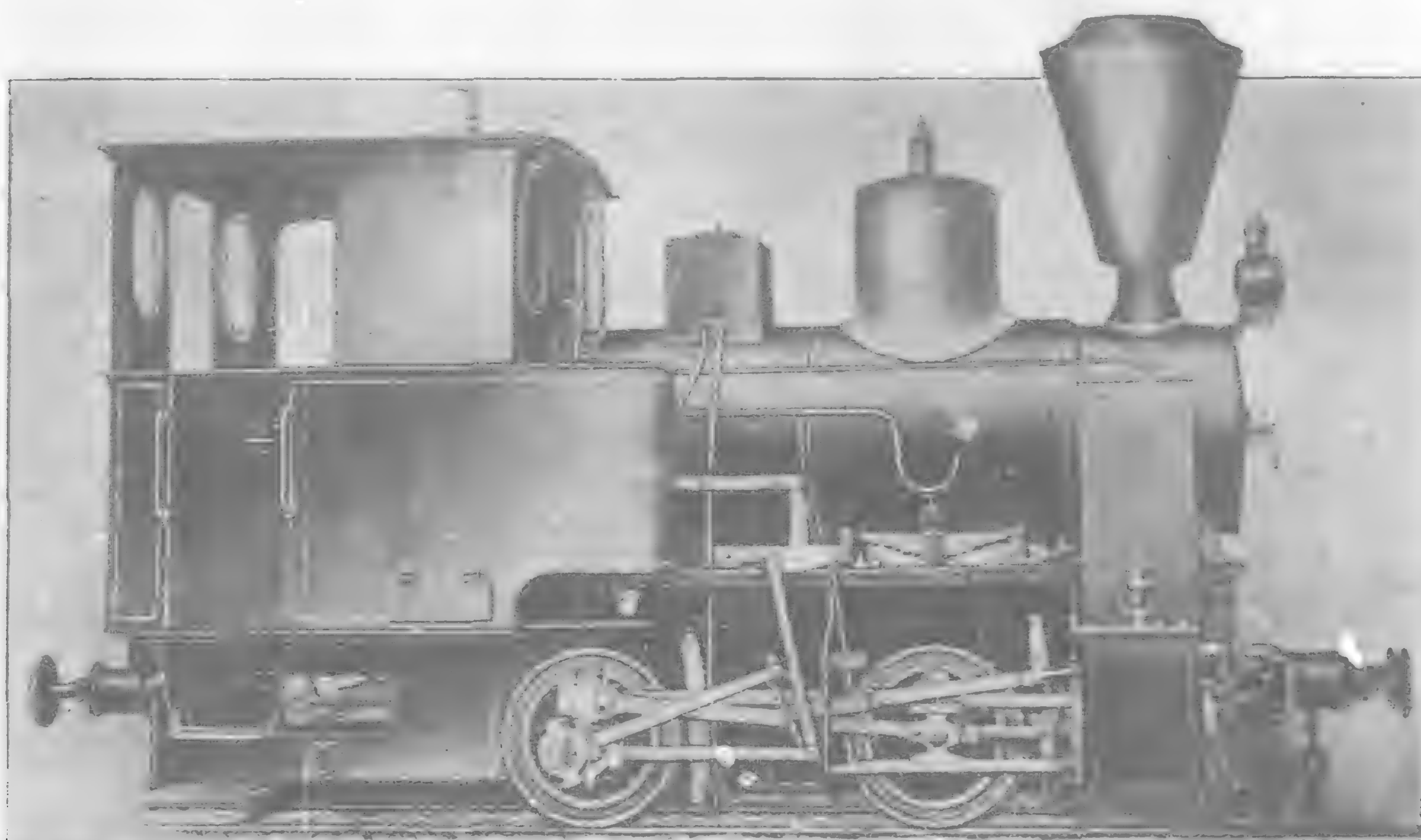




TSITSIHAR LIGHT RAILWAY.—2ND CLASS PASSENGER CAR



TSITSIHAR LIGHT RAILWAY.—3RD CLASS PASSENGER CAR



TSITSIHAR LIGHT RAILWAY.—JORENSTEIN &amp; KOPPEL LOCOMOTIVE

#### TSITSIHAR-AIGUN RAILWAY

The construction of a road connecting Tsitsihar, the capital of Heilungkiang Province, with the town of Aigun on the Amur River has been advocated from time to time by the Chinese authorities as a military necessity. The Peking Agreement of 1905 which gave to Japan certain preferential railway rights in Manchuria and prohibited China from building a line parallel to, or in the vicinity of the South

Manchuria road, made it impossible for China to reach her northern frontiers except by a line through Mongolia.

By granting a contract to a British firm for the extension of the Imperial Railways of North China towards Fakumen, China hoped to circumvent the letter of her agreement with Japan, and if this initial step met with no opposition, the road was afterwards to be extended still further northwards, ultimately

reaching the provincial capital of Heilungkiang Province at Tsitsihar. A road from this point northwards to Aigun on the Amur River has already been partially surveyed and reported on and in 1907 the Governor of Heilungkiang is reported to have entered into an agreement for its construction, but owing to lack of funds, the only part of the work actually let out to contract was the short 18 mile line from Old Tsitsihar to the main line of the Chinese Eastern Railway. This line has recently been opened to traffic. The proposed railway northwards towards Aigun will be about 245 miles in length. From Tsitsihar it will proceed in a northerly direction and skirt the banks of the Nonni river for a distance of about 100 miles, as far as the important town of Mergen. From Mergen it will branch off to the north east to Aigun via Mono-khe a market town of note. The Governor of Heilungkiang promised to complete the line within four years and despatched a number of officials to commence operations and attend to the survey work.

The line, although confined to the fairly level stretches of the Nonni Valley, will not be without several engineering difficulties. About 25 tunnels of various lengths have to be pierced. Between Mergen and Aigun the line will run alongside the existing Chinese highway.

The Tsitsihar Aigun line is expected to prove of great commercial utility. It will bring Southern Heilungkiang and also Kirin province in direct communication with Blagovostchensk on the Amur and other important Russian towns situated on this river. It will increase commercial activity and serve as a connecting link between the Chinese Eastern railway line and the Amur river steamship lines.



TSITSIHAR LIGHT RAILWAY.—SALOON CAR FOR THE GOVERNOR OF HEILUNGKIANG



TSITSIHAR LIGHT RAILWAY.—EXTERIOR OF SALOON CAR



# THE SHANTUNG RAILWAY

The lease of Kiaochow by Germany in 1898 for 99 years was the outcome of the murder of two German missionaries in the province of Shantung in 1897. The commander of the German squadron took possession and a demand made on the Peking government for the punishment of the governor of Shantung, an indemnity to the families of the victims and an amount to reimburse Germany for the cost of occupation, besides securing a preference for German railway enterprise in that province. These demands were practically acceded to and with the signing of the lease a railway convention was concluded which follows:

I.—The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiaochow and Tsinan-fu to the boundary of Shantung province, *via* Wei-hsien, Tsinchow, Pashan, Tsechuen and Suiping. The second line will connect Kiaochow with Chinchow, whence an extension will be constructed to Tsinan through Laiwuhsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II.—In order to carry out the above mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this Company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III.—All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these railways shall be justly divided *pro rata* between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV.—The Chinese Government shall allow German subjects to hold and develop mining property for a distance of 30 li from each side of these railways and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiaochow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiaochow-Tsinan-Chinchow line, Chinchow-fu, Luiwuhsien, etc. Chinese capital may be invested in these operations and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before manufacturers of any other Power are



SHANTUNG RAILWAY—TERMINAL AT TSINGTAO



SHANTUNG RAILWAY.—TSCHOU-TSUN STATION



SHANTUNG RAILWAY.—LANTSUN STATION





SHANTUNG RAILWAY.—CHING-CHOW FU STATION



SHANTUNG RAILWAY.—TSCHENG-YANG STATION



SHANTUNG RAILWAY.—LIKOTSCHUANG STATION



SHANTUNG RAILWAY.—COAL MINE AT FANG-TSE



SHANTUNG RAILWAY.—FANG-TSE MINES

approached. Should German capitalists or manufacturers decline to take up the business the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

Then followed the development by the German government of the port of Kiaochow for which 8,500,000 marks were appropriated by the Reichstag. A company to be known as the Schantung Eisenbahn Gesellschaft was organized at Berlin with a capital of 54,000,000 marks. By its concession the Syndicate was to build a line from Tsingtau to Kiaochow and from the latter point by way of Weihsien to Chinanfu together with a branch to Poshan, within a period of five years. In addition the Syndicate was given an option to construct a line from Kiaochow to Ichowfu and another connecting Chinanfu and Ichowfu. In consideration of this concession the Syndicate agreed to turn over to the German government a part of the surplus profits after paying a dividend of 5%. The construction of the main line was completed in 1904, a distance in all of 240 miles. The branch to Poshan is 34 miles in length, making, in all, 274 miles approximately. The proposed line between Ichowfu and Chinanfu was abandoned in favor of the Anglo-German Syndicate in connection with the construction of the Tientsin-Pukow line. The Kiaochow-Ichowfu line was surveyed but further work was abandoned. The cost of the line was approximately \$47,500 gold a mile. The editor of the *London and China Express* who visited Shantung in 1907 makes the following interesting report:

"The Schantung Eisenbahn Gesellschaft runs between Tsingtau and Tsinan-fu, the capital of the province, and it has a branch line to Poshan for the mines there. The main line is 412 kilometers long. It is standard gauge and laid on iron sleepers. Moderate weight rails are employed, and at present no fast speeds are attempted. The journey in fact takes 13 hours, of which nearly three hours were stoppages. Some acceleration of the service is to take place this autumn. Certainly what seemed to strike one at present was the unnecessarily long halts that occurred at some of the stations, and again the large number of stations. Other railways in China have greater distances as a rule between the stopping places, and one wondered whether all the stations could pay. A reference to the last issued report showed, however, that each was contributing a net revenue, so that their comparative frequency is justified. The stations are good, useful buildings, without ostentation, and adapted to the purposes for which they are designed. The bridge work over the many shallow rivers and streams, which in the rainy season often become raging torrents for a short time, is fairly solid, and the roadbed in good order, certainly for the speeds at which we progressed. According to the last available figures, those for 1906, the stock comprised 30 locomotives, 107 passenger and baggage wagons, including three postal cars, and 720 freight cars. The latter include some fine covered vans for the transport of strawbraid, specially constructed so as to take 15 tons of measurement braid."

The Shantung Railway Company reported that in 1905 the traffic showed a sufficient development, while in 1904 there was an average weekly traffic of 10,748 passengers and 4,695 tons of goods, for 1905 there were 15,452 passengers and 5,971 tons of goods. In 1905 the total traffic amounted to 803,527 passengers (558,868 in 1904) and to 310,482 tons (179,270 in 1904). Among the goods coal takes the first place with 158,115 tons in 1905 and 68,921 tons in 1904. Also it may be mentioned that of agricultural produce from the interior, and as beans, cotton, earthenware, straw plaitings, etc., continually larger quantities are transported. The financial result showed an income of 1,912 Mex. dollars, against 1,246,047 Mex. dollars in 1904. After writing off m.50,000 on stock and after giving m.300,000 to renewal purposes there remained a net profit of m.2,063,572, of which m.103,179 were applied to special reserve, while m.1,755,000 was distributed as a dividend of 3½ per cent on the paid-up stock capital of m.54,000,000.

In 1906 there were carried 846,000 passengers against a little over 800,000 in 1905, and 381,000 tons of goods, against 310,000 tons the





SHANTUNG RAILWAY.—ACCIDENT AND COLLAPSE OF BRIDGE



SHANTUNG RAILWAY.—TSINGTAU TRAIN YARD

before. The coal transported was 208,000 tons. The distribution of petroleum amounted to 10,000 tons a year. The passengers travelled on an average 70 kilometers in 1906, against 68 in 1905, and the goods haulage was 179 kilometres, being the same as for 1905. The receipts in 1906 were \$2,169,000, against \$1,912,000 in 1905. This meant \$4,970 per kilometre, against \$4,382 in 1905. The expenses per kilometre in 1906 were \$2,089. The passenger fares, generally speaking, are moderate in amount. The surplus, aided by a higher exchange, came to m.2,642,000, and after passing 5 per cent to reserve and 5 per cent. to special reserve a dividend of 4½ per cent. was paid on the capital of m.54,000,000. The staff in Shantung comprises 57 Europeans and 424 Chinese. The company has a complete range of workshops at Sytang close to Tsingtau, where all repairs to stock and other material can be carried out, as well as construction work up to a certain point. The company houses its employees here, and the workmen's dwellings are a model of what should be done for Chinese in this way."

The longitudinal section of the road shows that the main line is made up of forty-two per cent. level, twenty-nine per cent. rise, and twenty-nine per cent. fall, with a maximum grade of six per cent. The permanent way has been constructed to sustain ordinary traffic at a speed not exceeding 37.5 miles per hour.

The survey covered an area of a strip of land varying in breadth between 500 and 2,000 yards, and cost about £36 per mile, being completed at the rate of ten miles per month. The land was expropriated in accordance with Chinese law, i.e. being paid per square yard, with a surcharge of eight per cent. for land in crop and near the townships. The earthwork was sublet in contracts of six miles in length, and was paid for at schedule prices, i.e. 4d. per cubic yard for ordinary earthwork, and 10d. per cubic yard for rock. All bridges and culverts were standardized, as well as the wooden and steel scaffolds used for erection.

The railway was five years in construction and cost:—

Land	£89,700
Earthwork	148,000
Level crossings and fencings	2,700
Bridges and culverts	728,000
Permanent way	759,000
Signals, blockhouses, etc.	13,200
Stations	106,000
Repairing-shops, etc.	85,000
Materials (coals, etc.)	310,000
Administrative expenses	203,000
Interest on capital, etc.	200,000
Total	£2,644,600

including interest on capital, about £9,200 per mile.

The Report of the Company for 1908 shows following returns:—

The receipts increased from Mex. \$2,355,696

(U. S. \$958,768) in 1907 to Mex. \$2,599,940 (U. S. \$1,058,176) i.e. 10.37%, while the expenditure decreased from Mex. \$822,703 (U. S. \$331,657) in 1907 to Mex. \$799,652 (U. S. \$325,458). The profits increased from Mex. \$1,532,993 in 1907 to \$1,800,287 i.e. 17.44% (U. S. \$623,928 and \$732,717).

The average exchange for Mex. \$100 equal Mk. 213.78 (U. S. \$50.88) decreased to Mk. 178.07 in 1908 (U. S. \$42.38), that is 16.8%; so in remitting the money to Germany there was a loss in exchange of Mk. 642,883 (U. S. \$153,004), so that the profit in Marks does not reach last year's total. A dividend of 4½% was declared.

November 23, 1908, a mixed train was derailed on the Peishaho bridge through breaking of an axle, in consequence of which 8 persons were severely injured; a bridge culvert was destroyed and four cars were burned. The incurred expenditure amount to Mk. 110,000 (U. S. \$26,180). All relations between Chinese and Officials were satisfactory.

The establishment of buildings along the road at places without hotel accommodations proved to be needed, and is greatly appreciated by inland travellers. Six new buildings for employees were built along the road.

Afforestations on both sides of the road has been commenced. Acacias and elders have been principally used.

The rolling stock has been increased by 2 locomotives, 6 baggage cars, 10 covered freight cars, 20 coal cars and 3 tank cars; through the accident at the Peishaho bridge four cars were lost.

The rolling stock all told at the end of the year consisted of: 35 locomotives, (17 double engines, 4 tender engines, 7 freight engines, 4 reserve engines) in all 0.0733 piece per kilometer. 109 passenger and baggage cars: (19 passenger cars I-II class, 17 cars II class, 59 cars III class, amongst the latter are 24 for small freight, and two dining cars. Twelve baggage cars, 7 mail cars, 1 service car and 1

parlor car) in all 0.250 pieces per kilometer. 793 freight and service cars (180 covered cars, 460 coal cars, 25 coke cars, 5 double bottom cattle cars, 10 lime cars, 100 platform cars, 8 tank cars, 3 crane cars, 2 tool cars. In all 1.817 pieces per kilometer. The locomotives are all of German type weighing from 33 to 100 tons. The weight of freight cars empty is from 7 to 20 tons, loaded from 22 to 35 tons.

There run 14 mixed trains daily and extra freight trains if necessary. Besides, since September 15, one fast train has been run daily, in each direction between Tsingtau and Tsinanfu-West, stopping at the main station only.

The principal articles of freight in carloads were: Hard coal, bricks and coke 258,978 tons, beans 37,745 tons, assorted goods 30,835 tons, metals, metal goods, machinery, etc., 18,286 tons, wood and wooden articles 17,793 tons, kerosene 17,784 tons, salt 13,629 tons, cotton, raw and spun 10,346 tons, grain 8,241 tons, fruit and nuts 7,714 tons, paper 6,328 tons, sorghum 6,177 tons, sugar 6,125 tons, crockery ware 5,155 tons, strawbraid and rush matting 4,919 tons, oil 3,784 tons, lime 2,534 tons, matches, 2,525 tons, brooms 2,195 tons, vegetables and trees 2,073 tons, rice 1,598 tons, stones 1,295 tons, cement 1,120 tons and tar 1,050 tons.

Less than 1,000 tons and above 100 tons were transported: Indigo, glass, cocoons, cash, oil cake, tobacco, soda, silk, straw, bones, flowers and plants, fish, skins and pelts.

Animals were transported:

19,428 head of large animals against 26,214 in 1907.

20,136 head of small animals against 7,595 in 1907.

Of the larger animals there were:

13,367 head oxen, 5,001 donkeys, 670 mules, 390 horses; and of the small animals: pigs 18,650, sheep 954, calves 532.

The financial results show total receipts of Mex. \$2,614,078.58 against \$2,359,185.42 (U. S. \$1,064,929.98) \$960,188.46 an increase of 10.80% against the previous year.



SHANTUNG RAILWAY.—WEIHSIENS STATION



# THE SOUTH MANCHURIA RAILWAY

The South Manchuria Railway between Kuangchengtzu, Dalny, and Port Arthur was transferred to the Japanese Government by Russia at the close of the Russo-Japanese War. The organization of a company to operate this line was authorized by an Imperial Ordinance

Government to receive Yen 100,000,000 in shares for

(1) Railways already constructed (excluding the rolling stock now in use, rails of the Mukden Antung-hsien light railway and accessories).

Company for fifteen years after the registration of its organization and that the subsidy shall in no case exceed 6% of the paid up capital, that the subsidy with an interest of 6% shall be made a liability of the Company to the Government, repayable with the excess of the Com-



**HIS EXCELLENCY BARON S. GOTO**  
MINISTER OF COMMUNICATIONS OF THE IMPERIAL JAPANESE GOVERNMENT. AS FIRST PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY, HE REBUILT AND REORGANIZED THE ROAD, BRINGING IT UP TO ITS PRESENT HIGH STATE OF EFFICIENCY



**MR. Z. NAKAMURA,**  
PRESIDENT OF THE SOUTH MANCHURIA RAILWAY COMPANY

issued by the Emperor of Japan, and in pursuance of the provisions thereof the Organization Committee held its first meeting on the 10th of August, 1906.

It was decided that the head offices of the Company should be located at Tokyo, with a branch office at Dalny, that the Company should be capitalized at Yen 200,000,000, the

(2) All property accessory to the above railways (excluding the property in the Leased Territory which should be specially designated by the Government).

(3) Coal mines at Fushun and Yentai.

It was also provided that interest, guaranteed by the Government, is to be paid at the rate of 6% per annum on the paid up capital of the

pany's dividends above 10% per annum on all shares.

There were, when subscriptions were called for in the autumn of 1906, 11,467 applicants for 106,643,418 shares. Of these all applications for less than ten shares were rejected, leaving 11,356 applicants for 106,643,016 shares or 106,544,016 shares in excess of the 99,000



**SOUTH MANCHURIA RAILWAY.—GENERAL OFFICES AND ADMINISTRATION BUILDING AT DALNY, RECENTLY COMPLETED**



to be allotted, the apportionment being as follows:—

	Shares.
Apportioned by calculation.....	94,333
Apportioned by lot.....	4,667
Directors' shares, reserved.....	1,000
Total.....	100,000

The Government's portion, Yen 100,000,000, was regarded as paid up, and the actual subscribed capital of the company is now Yen 100,000,000.

Although it was provided that the South Manchuria Railway should be a Chinese-Japanese organization, the Chinese failed to avail themselves of the opportunity to purchase shares and protested against the organization of the Railway on the grounds that the Articles of Association were inconsistent with the terms of the Peking Treaty signed in December 1905, and claimed that Japan had included in the list of "property" of the South Manchuria Railway Company certain branch lines and collieries, notably the Yentai and Fushun Mines, which they claimed, although a certain amount of Russian capital was used in their operation, were Chinese private property.

**Administration.**—In view of the varied functions delegated to the Railway Administration as well as the intimate association of this organization with the Japanese Government, the political significance of its policy, and the extent to which its control of the communications of southern Manchuria may affect the commercial development of this region, can scarcely be overestimated.

The Railway Company is empowered to:—

(1) Engage in the following business for the benefit of the Railway:

- (a) Mining, especially the working of the Yentai and Fushun collieries.
- (b) Marine transport.
- (c) Electric works.
- (d) Sale on consignment of the principal goods carried by rail.
- (e) Warehousing business.
- (f) Construction and administration of land and houses on the land belonging to the railway.

(2) Make the necessary provisions for education, health, and engineering work within the limit of the land belonging to the railway.

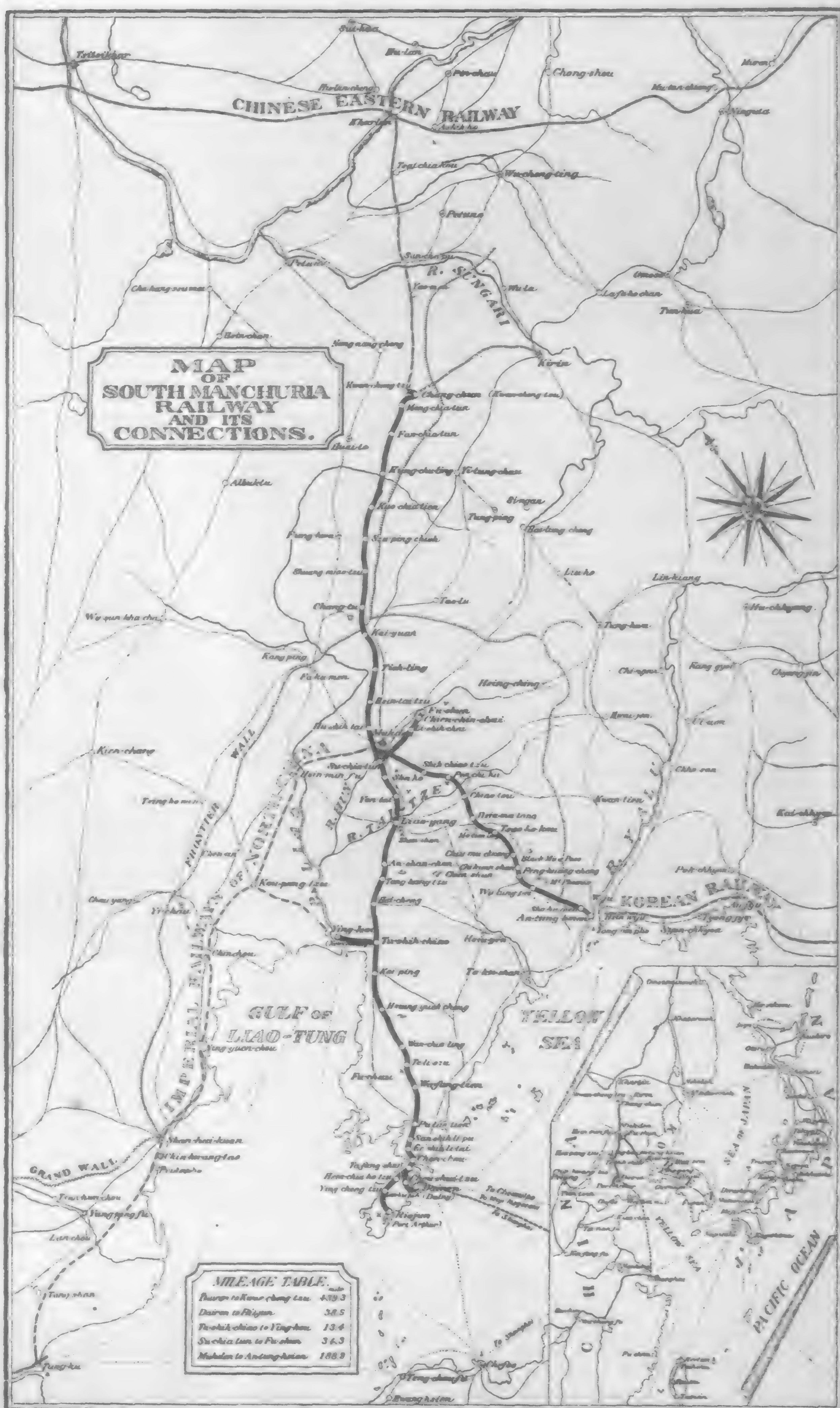
(3) Collect fees from the inhabitants within the limit of land belonging to the railway to defray expense of above.

The establishment of a Japanese settlement at Newchwang in an area not as at Liaoyang, Mukden, and Tieling, acquired from the Russians, but purchased from the natives, with an administration formerly controlled by the Military Governor of the Leased Territory, was perhaps the first instance of the application of the powers conferred in (2) and (3). If the tracts varying from one thousand to two thousand three hundred acres at the above mentioned cities had been put to a similar use, the Railway Company would have assumed the dignity of a Colonial Administrator, and this circumstance drew on the Japanese much adverse comment.

The Railway is protected by a force of approximately fifteen thousand men stationed at different points along the main and branch lines, and quartered not only in barracks near the stations, but within the neighboring cities as well.

The policing of the Railway is under the supervision of the Governor General of the Leased Territory who has charge also of an elaborate postal and telegraph system. The Manchurian Consular Courts have civil jurisdiction in the Railway Settlements.

The President of the South Manchuria Railway Company receives Yen 50,000 per annum, the Vice-President 30,000, the six Directors 12,000 each (six thousand salary and six thousand allowances), the Chief Secretary 10,000, and five overseers 1,000 each. At first the total number of officials and Japanese employees was 7,000, giving an average of approximately eleven per mile, and the monthly pay roll amounted to Yen 281,552.35. This force has since been greatly reduced, and the road is now



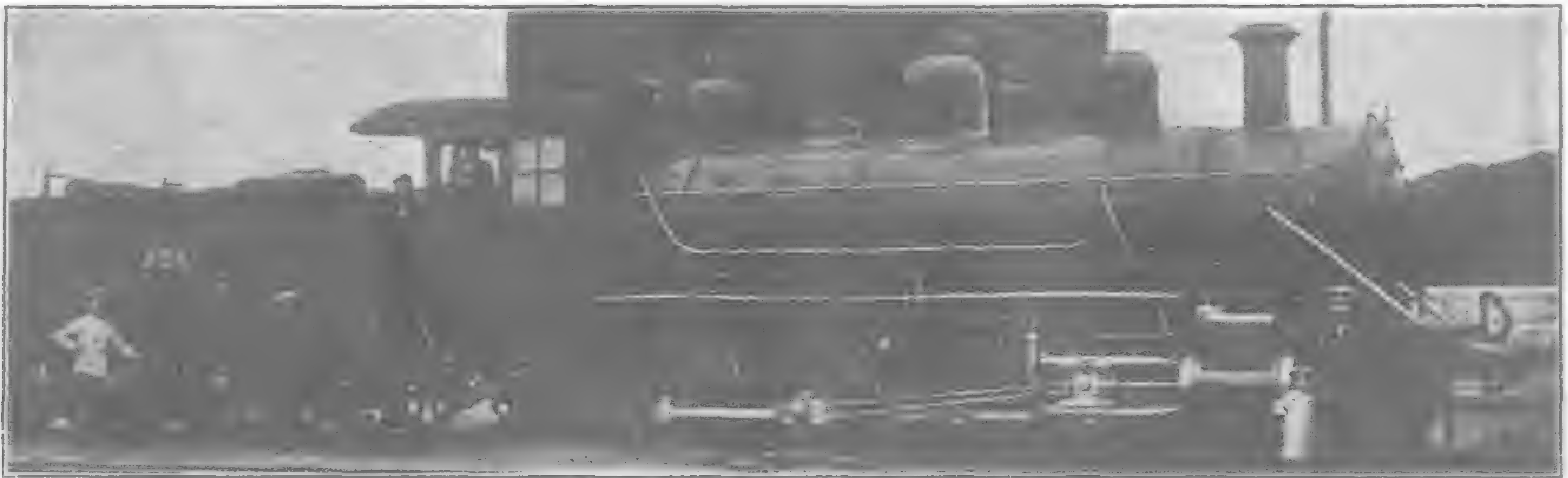
being run on strict business and economical lines. At present nearly all the construction work is being carried on by Chinese, as the Japanese laborer can not compete with him.

**Equipment.**—The military authorities, formerly in control of the Railway, declined to furnish information regarding the rolling stock on the line. Notwithstanding the demand for shipping facilities and the stagnation of freight at Tieling and other northern points, numbers of cars were returned to Japan, and Japanese as well as foreigners and Chinese complained that the Administration, in its haste to reduce the rental paid to the Railway Companies in Japan

for the use of their carriages, sacrificed large profits and seriously interfered with trade. Until steps were taken to widen the gauge and new rolling stock imported, there was no amelioration of these conditions.

Seventy box and open freight cars and second and third class passenger cars were all that were in use at one time, while the company was at work standardizing the line and awaiting new equipment from America. It was during this period that the criticisms of discrimination were most severe and many complaints found their way into print without any serious effort being made to analyze the underlying causes.





TYPE OF NARROW GAUGE AMERICAN LOCOMOTIVE IN USE ON S. M. RAILWAY BEFORE CONVERSION TO STANDARD GAUGE

While there was enough ground for some criticism, yet it is unfair to attack an enterprise for incompetency while it is striving to get on its feet.

There are four repair shops at Dalny, one at Liaoyang, three at Kuangchengtzu, and one at Port Arthur.

There are 781 railway buildings, including watch sheds, etc. Practically the only substantial buildings were constructed by the Russians and for a long time were in bad condition, and the repairs attempted by the Japanese were of the most temporary character. Tile roofs damaged by shell fire were roughly patched or where the original covering was wholly destroyed galvanized iron was substituted. Structures that were gutted by fire

The old roadbed was well laid and the embankments in good condition. Sixty-five pound rails were used and the ties are still serviceable.

It was stated that three years would be required to widen the gauge, from 3' 6" to 4' 8 1/2". This has been completed in half the time, and the company is at present double tracking the work from Dalny to Suchiatun to handle coal output of Fushun.

*Operation.*—The area traversed by the South Manchuria Railway is one of the richest agriculturally in the world, populated by a hard working and thrifty people who as pioneers and settlers are more open-minded than their fellow countrymen in China proper. Each year brings thousands of immigrants from the

the great distributing center for northern Manchuria and Mongolia.

Ordinary goods were charged 5 sen per ton per mile between Tashihchiao and the north, and between that place and Newchwang, while the same articles may be carried between Tashihchiao and Dalny for two sen per ton per mile. There are no positive proofs that preferential rates have ever been granted Japanese merchants, but there are indications that they have received privileges not accorded Chinese and foreigners, and the discrimination in favor of Dalny, at which place under the old military administration it was practically impossible for a foreigner to engage in trade, has in itself been the cause of much complaint on the part of the foreign merchants of Newchwang.



FREIGHT CARS ON THE SOUTH MANCHURIA RAILWAY

were lined with a wooden shell eight or nine feet high. Windows were boarded or the broken panes covered with paper and months of rough usage and careless treatment did not improve the condition of buildings which the Russians attempted to destroy as they retreated toward the north.

Here again the critic found fault with the administration, but the stations have since been made as comfortable as possible, and new edifices are going up at the most important places. The railway has confined its energies first to improving the track and rolling stock, so that they could handle the traffic, which would make new stations possible.

There are at the present time 254 permanent and 24 temporary bridges. The former are of no particular size north of Mukden. As the Russians dynamited most of the larger structures between Mukden and Ssuoiingkai they must necessarily be rebuilt.

provinces of Chihli and Shantung, and this human tide is gradually flooding the heretofore uncultivated plain of Heilungchiang and Mongolia, penetrating the forest-clad hills along the Yalu and peopling the valleys in the mountains that rise to the east of the great Liao Plain.

There are a number of prosperous cities, each having served as a market and distributing center for the country in its immediate vicinity, located at intervals of between thirty-five and forty miles, along the railroad between Newchwang and Changchun.

Tungchiangtzu and Fakumen, the former on the banks and the latter not far from the Liao River, and Tiehling which is on the river and railway as well, have been the great centers of the bean trade. Thousands of carts each winter brought their loads to these points for storage and shipment south when the river opened in the spring. Mukden has been the principal fur market and Changchun (Kuangchengtzu)

BRIDGE OVER THE HUN HO

It has been stated that no single line of Railway can carry the annual Manchurian bean crop to the seaboard, nor can the South Manchuria Railway Company ever be able to furnish adequate transportation facilities. There was in fact, at one time, so much dissatisfaction with the management of the line and the delays of freight in transit that a number of shipments were made from and to Newchwang by cart for not only is the cost of transportation slightly less but delivery may be expected within a certain definite time.

This condition can not be urged as an argument against the road at present, for, with the new equipment, every effort is being made to cater to foreign shippers at Newchwang, and at the same time handle the numerous freight from the north.

The Antung-Mukden line does not pay running expenses at the present time, but it is



SOUTH MANCHURIA RAILWAY.—STATION AT NEWCHWANG

S. M. RAILWAY.—ROUND HOUSE AT LIAOYANG

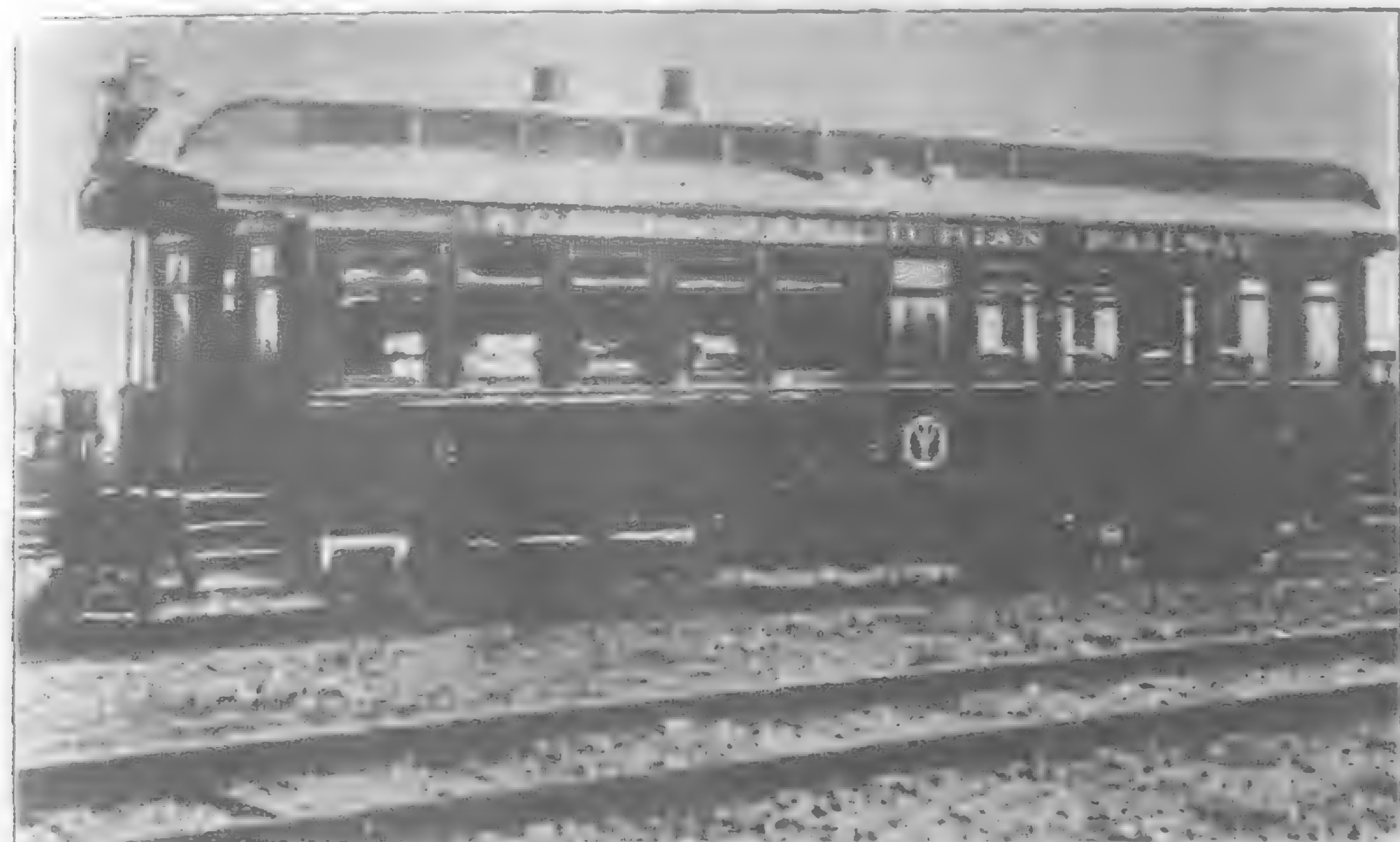




SOUTH MANCHURIA RAILWAY.—AMERICAN LOCOMOTIVE



SOUTH MANCHURIA RAILWAY.—AMERICAN EXCAVATOR AT WORK



SOUTH MANCHURIA RAILWAY.—MOTOR CARRIAGE



SOUTH MANCHURIA RAILWAY.—OLD ADMINISTRATION OFFICES AT DAIREN (NOW USED AS HOTEL)



SOUTH MANCHURIA RAILWAY.—NIHONBASHI OFFICE, DAIREN



SOUTH MANCHURIA RAILWAY.—EMPLOYEES' QUARTERS, DAIREN



SOUTH MANCHURIA RAILWAY.—BRIDGE NEAR DAIREN

hoped that it will ultimately become profitable owing to the fact that it will form part of the through trunk line to Fusan and will be of great service in developing the mineral resources of south-eastern Shengking.



SOUTH MANCHURIA RAILWAY.—LIAOVANG STATION





FUSHUN COAL MINES OF THE SOUTH MANCHURIA RAILWAY CO.: PANORAMIC VIEW OF THE MINES AT CHIEN-CHIN-CHAI, NO. 2



PULLMAN DINING CAR ON THE SOUTH MANCHURIA RAILWAY

There are now 187 miles of track but the line will be considerably shortened when the gauge is widened and the final roadbed constructed.

The Yentai and Fushun branches, respectively 14 and 25 miles in length, connect the coal mines at these places with the main road.

A railway probably will shortly be constructed between Changchun (Kuangchengtzu) and Kirin, and it is stated that a company has already been organized with a capital of 4,000,000 Taels, and has engaged Japanese engineers to undertake the preliminary surveys.

*Principal Officials of the Railway Administration.*—President, Z. Nakamura, Dairen; Vice-President, S. Kunisawa, Dairen; Directors, C. Seino, (Tokyo Branch), Tokyo; K. Kubota, N. Inuzuka, S. Tanaka, M. Kubota, S. Okamatsu, K. Nonomura, Dairen; Secretary, M. Numata, Dairen; Chief Railway Engineer, S. Kunisawa, Dairen; Chief Mining Engineer, Matsuda, Fushun Collieries; Chief Accountant, S. Yasuda, Dairen; Construction Engineer, S. Hori, Dairen; Superintendent of Hospitals, Dr. K. Kasai, Dairen; Captain Superintendent, Capt. K. Matsuo, Dairen; Mechanical Engineer, M. Yoshino, Dairen; Harbor Engineer, T. Uchida, Dairen; Electrical Engineer, Y. Kasuya, Dairen; Superintendent of Hotels, K. Uyeda, Dairen; Store Superintendent, S. Yamamoto, Dairen.

## COMPARATIVE SEMI-ANNUAL STATEMENT OF PROFIT &amp; LOSS

	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Railway Receipts.....	Y 4,093,424.860	Y 5,675,462.253
2. Mine Receipts.....	647,065.693	837,153.557
3. Harbour Receipts.....	146,848.338	425,644.280
4. Hotel Receipts.....	16,451.800	42,940.910
5. Electric Work.....	5,674.000	59,247.400
6. Land.....	33,537.545	87,256.906
7. Miscellaneous.....	59,456.813	412,951.411
Total.....	Y 5,002,459.049	Y 7,540,656.717

## LIABILITIES

	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Railway Expenditures...	Y 2,757,446.446	Y 3,344,168.420
2. Mine Expenditures.....	348,251.072	582,963.309
3. Harbour Expenditures.....	63,624.343	496,526.229
4. Hotel Expenditures.....	32,025.735	58,194.457
5. Electric Work Expenditures.....	39,307.403	61,930.175
6. Land Expenditures.....	85,730.665	165,275.457
7. General Expenditures.....	688,899.026	708,731.794
8. Debenture redemption Fund.....	58,578.000	8,578.500
9. Interest on Debentures.....		976,300.000
Total.....	4,073,862.690	6,452,667.841
Net profit.....	928,596.359	1,087,988.876

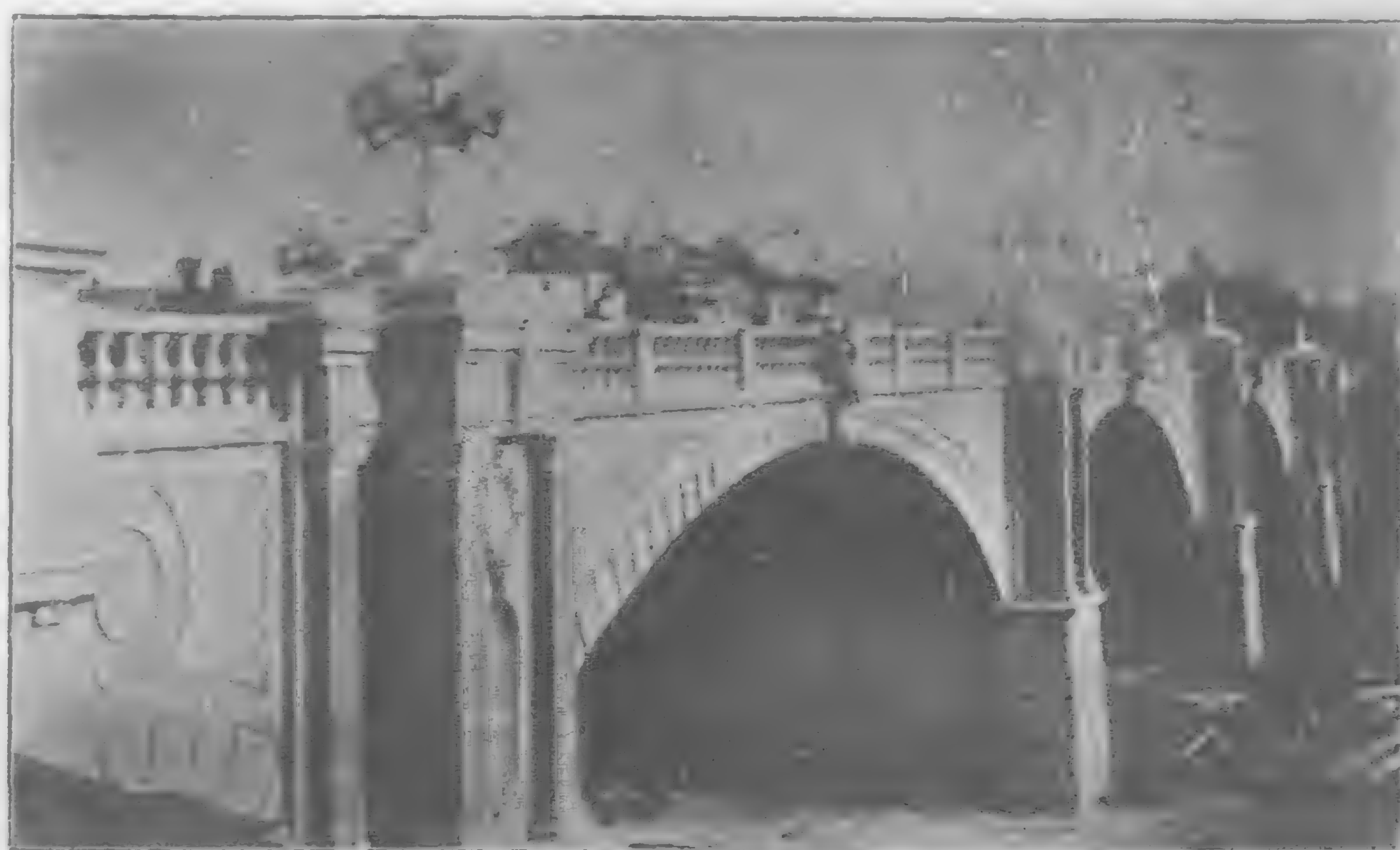
## COMPARATIVE SEMI-ANNUAL STATEMENT OF ASSETS &amp; LIABILITIES

ASSETS		
	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Uncalled Capital.....	Y 18,000,000.000	Y 18,000,000.000
2. Properties taken over from the Government of Japan.....	100,000,000.000	100,000,000.000
3. Capital Expenditures.....	4,513,325.415	14,048,757.648
4. Stores.....	2,021,887.525	13,796,971.252
5. Coal in stock.....	144,765.398	138,744.713
6. Ground and Buildings of Tokyo Branch office.....	183,731.250	633,731.250
7. Difference between Face Value & Issue Price of debentures.....	2,928,900.000	2,928,900.000
8. Suspension account.....	646,200.755	1,434,322.690
9. Sundry Debtors.....	175,076.349	809,046.677
10. Workshop %.....	125,046.955	124,876.111
11. Deposits.....	5,007,712.688	13,416,661.310
12. Cash on hand.....	122,062.348	144,099.099
13. Unpaid Debentures.....	28,117,440.000	
14. Postal and Revenue Stamp %.....		3,420.000
Total.....	Y 161,986,148.683	Y 165,449,530.907





SOUTH MANCHURIA RAILWAY.—NIPPON BRIDGE AT DAIREN



SOUTH MANCHURIA RAILWAY.—NIPPON BRIDGE, DAIREN



SOUTH MANCHURIA RAILWAY.—DAIREN STATION (AT LEFT)



SOUTH MANCHURIA RAILWAY.—DAIREN STATION



SOUTH MANCHURIA RAILWAY —YARDS AT DAIREN



S. M. R.—VIEW OF YARDS FROM NIPPON BRIDGE



SOUTH MANCHURIA RAILWAY—WHARF AT DAIREN



SOUTH MANCHURIA RAILWAY.—WHARF AT DAIREN



## LIABILITIES

	1ST WORKING HALF-YEAR (April-Sept. 1907.)	2ND WORKING HALF-YEAR (October 1907 March 1908.)
1. Capital Authorized	Y200,000,000.000	Y200,000,000.000
2. Capital Subscribed	120,000,000.000	120,000,000.000
3. Legal Reserve Fund	22,705.890	69,135.710
4. Unclaimed Dividends	6,675.120	5,372.130
5. Debenture redemption Fund	39,052,000.000	39,052,000.000
6. Guarantee Deposits	58,578.000	117,156.000
7. Suspension %	1,935.600	260.000
8. Sundry Creditors	635,257.232	2,931,281.977
9. Special Reserve Fund	896,659.803	873,379.544
10. Land Rent %		200,000.000
11. Savings Deposits		5,696.082
12. Brought forward from last half-year		181,353.410
13. Balance Profit and Loss %	383,740.679	925,907.218
Total	928,596.359	1,087,988.876
Total	Y161,986,148.683	Y165,449,530.947

SEMI-ANNUAL TRAFFIC RECEIPTS & EXPENDITURES  
(SEPT. 1907—MARCH 1908.)

RECEIPTS		
	MAIN LINE ANTUNG	MUKDEN LINE
1. Passenger Traffic	Y1,707,046	Y 91,550
2. Goods Traffic	3 795,977	77,145
3. Miscellaneous	3,683	60
Total	Y5,506,796	Y168,755
EXPENDITURES		
1. Maintenance	Y 815,502	Y149,204
2. Operation	1,465,514	172,170
3. Traffic	673,576	68,262
Total	Y2,954,592	Y389,576

## COMPARATIVE STATISTICS OF OUTPUT OF FUSHUN COAL

MONTHS	QUANTI- TIES MINED	QUANTI- TIES SOLD	QUANTI- TIES CONSUMED BY CO.
Oct '07	23,525	1,637	12,970
Nov. '07	21,883	7,286	8,833
Dec. '07	24,934	3,033	9,489
Jan. '08	23,374	6,919	12,110
Feb. '08	17,635	7,082	18,247
March '08	27,082	13,674	24,093
April '08	27,802	5,748	21,033
May '08	31,425	7,623	19,512
June '08	33,504	10,079	30,402
July '08	37,048	10,107	36,807
Aug. '08	34,476	8,847	20,884
Sept. '08	40,274	14,314	23,624
Total	342,962	96,349	238,004

## PARTICULARS OF THE RAILWAY AREA

AREA OF THE RAILWAY ZONE		
1. Within the Leased Territory.	6,637,671	"tsubo."*
2. Along the Main Line outside the Leased Territory	40,107,477	"
3. Along the Yingkou Branch Line	1,790,102	"
4. Along the Fushun Branch Line	528,797	"
5. Along the Antung-Mukden Light Railway Line	1,522,350	"
6. The balance scattered over a number of places along the Lines	3,585,315	"
Total	54,171,712	"
LAND AND BUILDING AREA RENTED		
1. The total area of land rented out at the end of July 1908	12,814,083	"tsubo."
2. The total building area rented out at the end of July 1908	12,171	"

SOUTH MANCHURIA RAILWAY EXPRESS TRAINS composed exclusively of the Pullman Dining, Sleeping, and 1st Class Cars, are operated Semi-Weekly as follows:

## FOR EUROPE

## DAIREN

Sunday—Arr. about 6 a. m. by S. S. "Kobe-Maru" from Shanghai.  
Monday and Friday—Dep. 8 a. m.

\*A "Tsubo" represents 36 square feet.

## CHANGCHUN

\*Tuesday and †Saturday.—Arr. 5 a. m. South Manchuria Ry. Dep. 5.40 a. m. Chinese Eastern Ry. for Harbin.

## FROM EUROPE

## CHANGCHUN

‡Tuesday and †Saturday.—Arr. 7.30 p. m. (C. E. R. from Harbin.) Dep. 8.40 p. m. (S. M. R.)

## DAIREN

Wednesday and Sunday.—Arr. 6.15 p. m.  
Monday.—Dep. Noon. (By S. S. "Kobe-Maru" for Shanghai).

*Dairen-Shanghai Steamer Service.*—Passage tickets are on sale and berths may be reserved at the principal stations of South Manchuria Railway and also at the agencies of the International Sleeping Car & Express Trains Company and also Messrs. Thos. Cook & Son in Europe and the Far East, for the fast passenger steamer *Kobe-Maru* (2,877 tons) carrying a duly qualified surgeon on board, on the Dairen-Shanghai steamer service.

Leaving Dairen—Mondays at noon, and Arriving Shanghai—Wednesdays.  
Leaving Shanghai—Fridays.  
Due at Dairen—Sundays, in early morning generally.

## FARES:

	1st Class	2nd Class	3rd Class
Single Trip	-Y-40	-Y-25	-Y-10
Return Trip	-Y-64	-Y-40	-Y-20

*How to take the quickest route from Europe to the Far East.*—Suppose you take the Wagons-Lits train leaving Moscow every Wednesday and due at Harbin at 7.35 a. m. on the following Saturday.

8 hours and 25 minutes later, you will start for Chang-chun (Kwangchengtzu) Junction of the Russian and the Japanese Lines, reaching there at 7.05 on the same evening, in time to be transferred to one of our Semi-Weekly Express Trains composed exclusively of the Pullman Sleeping, Dining, and 1st-class Cars, leaving Changchun on Tuesdays and Saturdays.

The Saturday Express will depart from Changchun at 8.40 p. m., just like the other, and is due at 5.40 a. m. next morning (Sunday) at Mukden Junction for Tientsin and Peking via Shanhaikwan on the Imperial Railways of North China.

Leaving Mukden 25 minutes later, you will reach Dairen at 6.15 on the same evening, to put up, if you are so minded, at the Railway Hotel "Yamato" which is gaining in favor with the travelers for its irreproachable service and attention.

The passenger steamer *Kobe-Maru*, sailing from Dairen at noon every Monday, will take you to Shanghai on Wednesday.

TIME AND MONEY REQUIRED EN ROUTE  
(FROM EUROPE.)

## MOSCOW-SHANGHAI.

Moscow-Changchun—11 days.

1st class—Rbbs. 282 2-5, including Sleeping Berth fee.

2nd class—Rbbs. 184 3-10.

The Harbin-Kwangchengtzu Russian Section runs no Sleepers.

Changchun-Dairen—21 hours.

1st class—Y-39 9-20.

2nd class—Y-13 3/4.

Including Express Extra and Sleeping Berth Fees.

Dairen-Shanghai—2 days.

1st class—Y-40, single trip (return trip -Y-64).

2nd class—Y-25, single trip (return trip -Y-40.)

Nearly—15 days.

\*It connects with the International Train de Luxe, leaving Harbin for Moscow every Tuesday.

†It connects with the Russian State Express, leaving Harbin for St. Petersburg every Sunday.

‡It connects with the Russian State Express from St. Petersburg for Vladivostok, leaving Harbin every Saturday.

†It connects with the International Train de Luxe from Moscow for Vladivostok, leaving Harbin every Saturday.

## IMPERIAL RAILWAYS OF NORTH CHINA.

	1st Class.	2nd Class
Mukden-Peking	Mex. \$31.30	Mex. \$19.60
Mukden-Yingkow	Mex. \$ 9.80	Mex. \$ 6.15

The Chinese Expresses connect with our own at Mukden and take about 26 hours between Mukden and Peking.

*From the Far East to Europe.*—Peking-Moscow. Dep.—Peking, 5.30 p. m., daily, by Imperial Railways of North China.

Arr.—Mukden, 6.45 p. m., on the second day.

Dep.—Mukden, 8.20 p. m., on Mondays, by South Manchurian Express:

Arr.—Changchun, 5 a. m., Tuesdays.

Dep.—Changchun, 5.40 a. m., Tuesdays, by Chinese Eastern Railway.

Arr.—Harbin, 4.10 p. m., Tuesdays.

Dep.—Harbin, 6.25 p. m., Tuesdays, by Russian State Express:

Arr.—Moscow, 7.10 p. m., Thursdays week, Russian State Express.

*Harbin-St. Petersburg.*—The other Weekly Russian State Expresses leave Harbin for St. Petersburg, on Sundays, at 6.25 p. m., the 1st class fare being Rbbs. 298.95, including Express Extra and Berth fees, except Harbin-Kwangchengtzu Section, which runs no sleeping cars.

This trip takes in all 235 hours a little less than 10 days.

*St. Petersburg-London.*—The Expresses leaving the Russian Capital at 6 p. m. will land you in London, at 10 p. m. of the third day, taking about 53 hours and about Rbbs. 98 for the fare.

The report of the Railway for half-year ended March, 1909, is as follows:—

RECEIPTS.	Yen.
Railway income	8,164,391
Shipping income	72,489
Mining income	1,380,119
Harbor income	701,033
Local income	134,444
Hotel income	72,718
Electric income	131,146
Total	10,656,340
DISBURSEMENTS.	Yen.
Railway expenses	2,573,818
Shipping expenses	164,646
Mining expenses	859,139
Harbor expenses	518,470
Local expenses	180,648
Hotel expenses	79,195
Electric expenses	125,231
Losses	244,717
General expenses	633,690
Interest on debentures	1,822,427
Debenture reserve	2,112,570
Total	9,314,551

The net profits of the railway and mining departments, yen 5,590,573 and yen 520,980, are more than double those of the corresponding period of the preceding year, which were yen 2,331,293 and yen 254,190, respectively. The debentures reserve and the interest on debentures amount to yen 2,112,570 and yen 1,822,427, against yen 58,500 and yen 970,000 in the preceding half-year respectively. It will therefore be seen that the net profit, yen 1,341,780, is in the highest degree gratifying.

In the preceding six months the total receipts and disbursements were yen 6,959,342 and yen 6,187,548 respectively, and the debenture reserve was only yen 134,500. The principal cause of the large earnings during the past half year has been the heavy transportation of beans and bean cake.

The quantity of these commodities transported amounts to over 672,000 tons, an increase of 420,000 tons as compared with the preceding half year.

The decrease of yen 209,000 in passenger receipts is due in part to an amendment of the fares in June, 1908, and in part to a decrease in the number of long distance passengers.



# THE ANTUNG-MUKDEN RAILWAY

(OPERATED UNDER THE MANAGEMENT OF THE SOUTH MANCHURIA RAILWAY CO.)

This hitherto unimportant commercial road has been brought under the international search light by the recent action of Japan in forcing China's hand, and undertaking its reconstruction in the face of her opposition.

The road is apart from other existing railways in China, as it came into being to meet the exigencies of the Japanese military operations

Against the fulfilment of the above concession China has from time to time interposed objections, and employed evasive tactics to nullify its terms. It is entirely probable that a satisfactory compromise would have been reached, had the negotiations remained in the hands of Viceroy Hsu Shih Chang and his foreign educated advisers, but his removal

and Britain returned the measure in full by endorsing the move of her ally. There appears to be little doubt that China, encouraged by the professed policy of the American government under President Taft, and the writings of certain American publicists who took the view that any future hostility between Japan and America would have its genesis in Manchuria, looked for something stronger than mere moral support in her controversy with Japan. The failure of America to support China, in this controversy, after all the pro Chinese publicity propaganda at home, has



VIEW OF ANTUNG-MUKDEN RAILWAY

during the struggle with Russia, and was therefore hurriedly constructed. Subsequently, under Article VI of the additional agreement between Japan and China dated Dec. 22, 1905, Japan acquired the right to improve and operate the Antung-Mukden line for a period of eighteen years from the date of the agreement, after which the Chinese government acquired the right to purchase the line at a price to be determined by valuation and arbitration. China stipulated however, that the road should be reconstructed within two years after the military evacuation of the country, which occurred in December 1906. Thus according to the agreement the road should have been reconstructed by December 1908.

The full text of Article VI reads:—

"The Imperial Chinese Government agree that Japan has the right to maintain and work the military railway line constructed between Antung and Moukden and to improve the said line so as to make it fit for the conveyance of commercial and industrial goods of all nations. The term for which such right is conceded is fifteen years from the date of the completion of the improvements above provided for. The work of such improvement is to be completed within two years, exclusive of a period of twelve months during which it will have to be delayed owing to the necessity of using the existing line for the withdrawal of troops. The term of the concession above mentioned is therefore to expire in the 49th year of Kuang Hsu. At the expiration of that term, the said railway shall be sold to China at a price to be determined by appraisal of all its properties by a foreign expert who will be selected by both parties. The conveyance by the railway of the troops and munitions of war of the Chinese Government prior to such sale shall be dealt with in accordance with the regulations of the Eastern Chinese Railway. Regarding the manner in which the improvements of the railway are to be effected, it is agreed that the persons undertaking the work on behalf of Japan shall consult with the Commissioner despatched for the purpose by China. The Chinese Government will also appoint a Commissioner to look after the business relating to the railway as is provided in the Agreement relating to the Eastern Chinese Railway. It is further agreed that detailed regulations shall be concluded regarding the tariffs for the carriage by the railway of the public and private goods of China."

and the appointment of the reactionary Viceroy Hsi Liang, brought about a speedy termination to the controversy. As a last argument Viceroy Hsi took the view that, although the treaty provides for the improvement of the railway, it does not provide for its reconstruction, and what was meant by China was that Japan might repair the line to adapt it for the conveyance of goods, without any change of gauge.

This argument induced Japan to adopt a "strong attitude" in dealing with the matter, and led to the abrupt breaking off of the negotiations and the issuance of orders from Tokio to proceed with the work of reconstruction at once.

materially reduced her prestige throughout the Empire. It did not take China long to discover her isolation, and to save face she very readily assented to a reopening of the negotiations which terminated in settling all the outstanding issues with Japan within 30 days after the crisis.

Japan is now proceeding with the reconstruction of the Antung-Mukden line. A description of the old line follows:

Shortly following the occupation of Antung by the Japanese forces on May 1, 1905, owing to the almost impassable character of the mountain roads in this region and the necessity of facilitating a more rapid movement of supplies,



BLACK MINE PASS ON THE ANTUNG-MUKDEN RAILWAY

It is significant that not one official protest was raised by any of the Powers against Japan's move, and it disclosed the fact that China had alienated her best friends and stood alone. The two powers professing the greatest adherence to the Open Door doctrine, Great Britain and America, were conspicuous by their silence and apparent acquiescence in Japan's action. For two years China has been steadily attacking British interests and concessions all along the line, and one after the other have gone by the board, until it may be said that British diplomacy in China has suffered a complete breakdown. In her hour of trouble, China lost one of her sincere friends,

the construction of a light railway was begun by their engineer corps and its extension continued with the advance of the army as far as Shichiaotzu, a point about 30 miles to the south-east of Mukden. The country to the north and west of Shichiaotzu, drained by the Taitzu River, a tributary of the Hun Ho, being quite level and ordinary methods of transportation comparatively easy, this point was made the terminus of the railway until August, 1906, when the Okuragumi, a large Japanese concern, received from the military authorities a contract to extend it to Mukden. The construction of this section, covering a distance of 33 miles, was finished in less than one and one-half months.



While the railway follows practically the same route as when first laid, considerable grading has since been done, unsafe wooden bridges have in several places been removed and the gullies filled in with crushed stone, and at a few points the distance has been shortened and crossing over the mountains made less dangerous by cutting through ledges. The work of improving the road is still going on, gangs of Chinese workmen, each under a Japanese foreman, are scattered along the entire distance, and ties as well as other railway materials seem to form the bulk of the freight at present handled. No tunneling has yet been done and

The journey from Antung to Mukden requires two days. The through trains both leave in the morning, one at 6 o'clock and the other at 9, and reach Tsaohohu (Sokako) 12 hours later. Operation after dark would of course be subject to a great deal of risk, so that passengers are obliged to pass the night at this point, resuming their journey on the following morning at the same hours as before. Tsaohohu is not at all a suitable place to recover from the day's fatigue. It has a number of Chinese inns and one in Japanese style, neither particularly inviting to the foreigner. The traveler must bring his luncheon with him to Antung, as

what the railway was in its early days and the distance, 187 miles (100 as the crow flies), is undoubtedly the greatest covered by a line of its kind. The average speed is about 9 miles an hour, although as high as 12 miles is reached on the level.

As already stated, the greater part of the freight handled consists of railway supplies. The amount of general goods carried is almost too small to be considered, and the supposition that the absence of a custom house at Antung has been taken advantage of to ship large quantities of merchandise into the region made accessible by this railway is not borne out by the



PULLMAN SLEEPING CAR ON THE SOUTH MANCHURIA RAILWAY

probably will not be until the survey of the permanent railway has been completed.

Wherever it could be done without making the route excessively circuitous, the road has been constructed side by side with river-beds, sometimes following a comparatively straight line and again winding among the mountains. There are four points at which the line crosses the tops of the mountains and where the trains either circle around the spurs or moves from side to side after the manner of a heavy-laden team going up or down a hill. At one place the line recrosses itself in parallel tiers one above the other as many as five times. Frequently the steep grades (1 in 30), the sudden turns and unstable wooden bridges follow one another in such a manner as to make the descent especially dangerous. Accidents are said to have been of very frequent occurrence formerly, but improved grading with crushed stone and more careful methods of operation have greatly lessened their number.

The gauge is 2 feet 6 inches. The rails as well as the rolling stock, including locomotives and trucks, were supplied by the Baldwin Locomotive Works. The system possesses altogether 150 locomotives, 100 of these being of 16 and the remainder of 11 tons. The freight cars are all open and similar to those used for hauling sand in America. There are two sizes, one with a capacity of 2, and the other 5 tons. The entire carrying capacity of the railway is only some 1,200 tons. Besides these open cars there are a number with tops and designed especially for the passenger traffic. At both Antung and Mukden there are several wooden buildings, which were once used for the storage of military supplies but at present seem in large part to be lying idle. The intermediate points also have storing facilities, used principally for the supplies of the railway employes, as well as substantial buildings of Chinese architecture for stations and the dwelling-houses of the railway officials.

The line was formerly under the control of the military authorities until its transference to the South Manchuria Railway Company, in December of 1906.

The line was opened to general traffic, both freight and passenger, in August, 1908. Two schedule-time runs are daily made from each end in addition to more or less regular ones between some of the intermediate points.

neither food nor drink can be secured until reaching Tsaohohu, and unless he is sure of satisfying his hunger with *cuisine japonaise*, which is all that is to be had here, he should equip himself at Antung with two days' subsistence.

At present, however, the importance of this

actual conditions. The rate, 10 sen (5 cents) a ton per mile, for most commodities is so high as to leave only a small margin of profit and in some cases is entirely prohibitive.

The standard gauge railway to connect Antung with Mukden, it is expected, will follow the same general course as the present one.



NEW JAPANESE BARRACKS FOR THE RAILWAY GUARDS AT MUKDEN

railway as a channel of immigration is slight and even with improved accommodations it can give but little encouragement in the region traversed by it to Japanese colonization or the small commercial enterprise so characteristic in parts of Manchuria more easily accessible. Indeed, there is nothing perhaps except the spirit of adventure which would induce the merchant, prospector or immigrant to avail himself of this route for reaching interior Manchuria. The train leaving at 9 o'clock consists entirely of freight-cars. Two or three of these may be loaded with freight, but the most of them are intended for passengers, who clamber into them pell-mell and struggle among themselves for squatting room. The discomfort of travelling in this manner during a heavy rain or a cold north wind can readily be imagined. The earlier train has attached one or two of the passenger-cars already mentioned. These, however, are not any more comfortable to sit in than the freight-cars and preferable to them only in affording shelter from inclement weather. In fact, the experience of traveling by this route probably helps one to form a good picture of

The Japanese railway administration hopes that within two years the standard gauge will be finished at a cost of ¥23,000,000. The reconstruction is divided into 14 sections. From Antung the line will run to the trade mart of Fughuangcheng (36 miles), thence through the mountainous district of the Motienling by a series of tunnels to Penhsi-hsien, an important coal centre, crossing the Tatsu River just before reaching this place, and thence a further distance of 50 miles to Suchiatun, 10½ miles to the south of Mukden, at which point a junction is to be made with the main line. Suchiatun is also the junction connecting with the Fushun collieries. The total length of the new line will be 170 miles.

The railway bridge over the Yalu River will, it is anticipated, be completed within the same period. Thus through communication on a standard gauge railway from Fusan to Mukden will be established. This route will doubtless attract many travellers from Japan to North China and through to Europe via the Trans-Siberian Railway, and will be an important channel for mail communication.



# CHINESE EASTERN RAILWAY



**MAJ.-GEN. HORVATH,**  
GENERAL MANAGER AND CHIEF OF THE  
RAILWAY STAFF OF THE C. E. RY., THE  
DOMINANT SPIRIT OF HARBIN



**VICTOR F. LUBA,**  
RUSSIAN CONSUL-GENERAL AT HARBIN,  
WHO WAS RECALLED

**PRINCE KHILKOFF,**  
CHIEF ENGINEER AND ASSISTANT CHIEF  
OF THE C. E. RY. STAFF, HARBIN

**MAJ.-GEN. CHICHAGOFF,**  
CHIEF OF THE RAILWAY GUARDS, HARBIN

The Trans-Siberian railway as originally projected followed the bank of the Amur River from Stetinsk to the Ussuri, a wide detour through a difficult extent of country, and the Russians naturally turned with envious eyes towards the more southern route through Central Manchuria, whose wide level expanse offered no serious engineering difficulties. To reach Vladivostock via the Amur River, entirely within Russian territory, the railway had to follow the long frontier on a useless detour, while the route across Manchuria shortened the distance by about 500 miles. The Sibe-

rian road was officially started in May 1891 by the Czarevitch at Vladivostock, and during its construction the war between China and Japan occurred. When the victorious Japanese exacted from China a portion of Manchuria under the treaty of Shimonoseki, Russia interfered and prevented this alienation of Chinese territory. As compensation for their friendly offices Russia secured the concession to build a railway across Manchuria to connect her Siberian and Ussuri Systems. This instrument was duly entered into between China and the Russo-Chinese Bank, an irregular off-

shoot from the Russian Finance Department. The Bank was established in 1895 for the purpose of furthering Russian commercial and political enterprises throughout Eastern Asia, and while the head office is at St. Petersburg, the most important office is at Shanghai.

The Agreement between the Chinese Government and the Bank was signed September 8, 1896. The Company was to be organized with a capital of 5,000,000 roubles, to be subscribed to by Russian and Chinese subjects exclusively. It also provided for the survey of the line through Manchuria towards Vlad-



THE GREAT ADMINISTRATION BUILDING OF THE C. E. RAILWAY



vostock covering a distance of about 950 miles in Chinese territory and its construction. The gauge provided for was five feet. The line was to be the property of the company for 80 years upon the expiration of which time it reverted without cost to China. It also provided for the repurchase of the line in 36 years after it was put in operation at a price representing the cost of the line and interest. It further provided that upon the opening of the line for traffic the company would pay the Chinese Government the sum of Tls. 5,000,000.

In the spring of 1897, work of construction was started and the same year the city of Harbin was founded and made the headquarters of construction. The following year, Russia secured a lease from the Chinese Government of the Liaotung peninsula, extending over a period of 25 years and with it, a concession to the Manchurian Railway Company to construct a southern line from Harbin to Port Arthur of five foot gauge. The construction of the line was pushed ahead rapidly and by the date of the boxer outbreak, with the exception of a number of bridges, it was practically completed. During this trouble much of the line was destroyed, and especially between Harbin and Port Arthur. The work was, however, renewed with vigor and in the fall of 1901 the entire Chinese Eastern Railway connecting the Trans-Siberia with Vladivostok across Manchuria and the line south from Harbin to Port Arthur was completed. This system in Manchuria in all measured about 1,600 miles.

The cost of the road to Russia is estimated at 300,000,000 roubles (\$150,000,000 gold) or roughly \$90,000, per mile. This is exclusive of 250,000,000 roubles spent in building Port Arthur, Dalny, Harbin, fortifications and other enterprises outside the strictly railway work. An article in the FAR EASTERN REVIEW for May 1909, describing the growth and decline of Harbin is largely typical of the history of the Chinese Eastern Railway. Extracts from this follow:

"In September 1896, the agreement between the Russo-Chinese Bank and the Chinese Government was concluded for the construction and management of the Chinese Eastern Railway. This was the link which was to bind the Pacific littoral with the great Trans-Siberian Railway, through Chinese territory in northern Manchuria, thus avoiding the greater task of following the crooked Amur River in the endeavor to seek an outlet to the sea. At the same time it created a new line of attack and approach to the goal at Peking, and the ultimate absorption of Korea. In the spring of 1897 the work of construction was commenced, and in the same year the city of Harbin was founded and made the administrative and working headquarters of the new enterprise. Harbin, the railway center of construction, was the ideal location for the concentration of material and forces, and was to be, in addition, the strategic center of Russia's new empire, and but for the unexpected war with Japan her purpose would have been crowned with success. From armed guards and administrative control to permanent occupation and annexation was only a short and easy step with decrepit old China, and Harbin was to be the center of the web which would enmesh the Three Eastern Provinces. From the new base Russia was to dominate Far Eastern trade, and Harbin was to become the Moscow of Asia, the Minneapolis of the Far East, and the Chicago of the Orient, and the products of her mills would be distributed by the railways radiating from the new city, and the network of waterways connecting with the Sungari.

So the city was located on the banks of the Sungari River at a point where the railway was to cross the stream, and where the connection southwards to Dalny was afterwards to be made. Situated 350 miles west of Vladivostok, and 600 miles north of Dalny, it was in the geographical center of Manchuria. When work on the railway at the eastern and western ends was commenced, vast stores of material were shipped by river craft up the Sungari to the new town so that work could also proceed from the center.

The old town was the first to be thrown open by the Railway Company for the purchase



HARBIN.—ADMINISTRATION BUILDING



HARBIN.—THE OFFICIAL RAILWAY HOTEL, NOW USED AS THE RUSSIAN CONSULATE GENERAL



HARBIN.—FRONT VIEW OF RAILWAY DEPOT



HARBIN.—HEADQUARTERS OF GENERAL STAFF FOR TRANS AMUR DISTRICT

CHINESE ENGINEERING RAILWAY.—STATION AT IMJANPO. HAS LARGE BREWERY



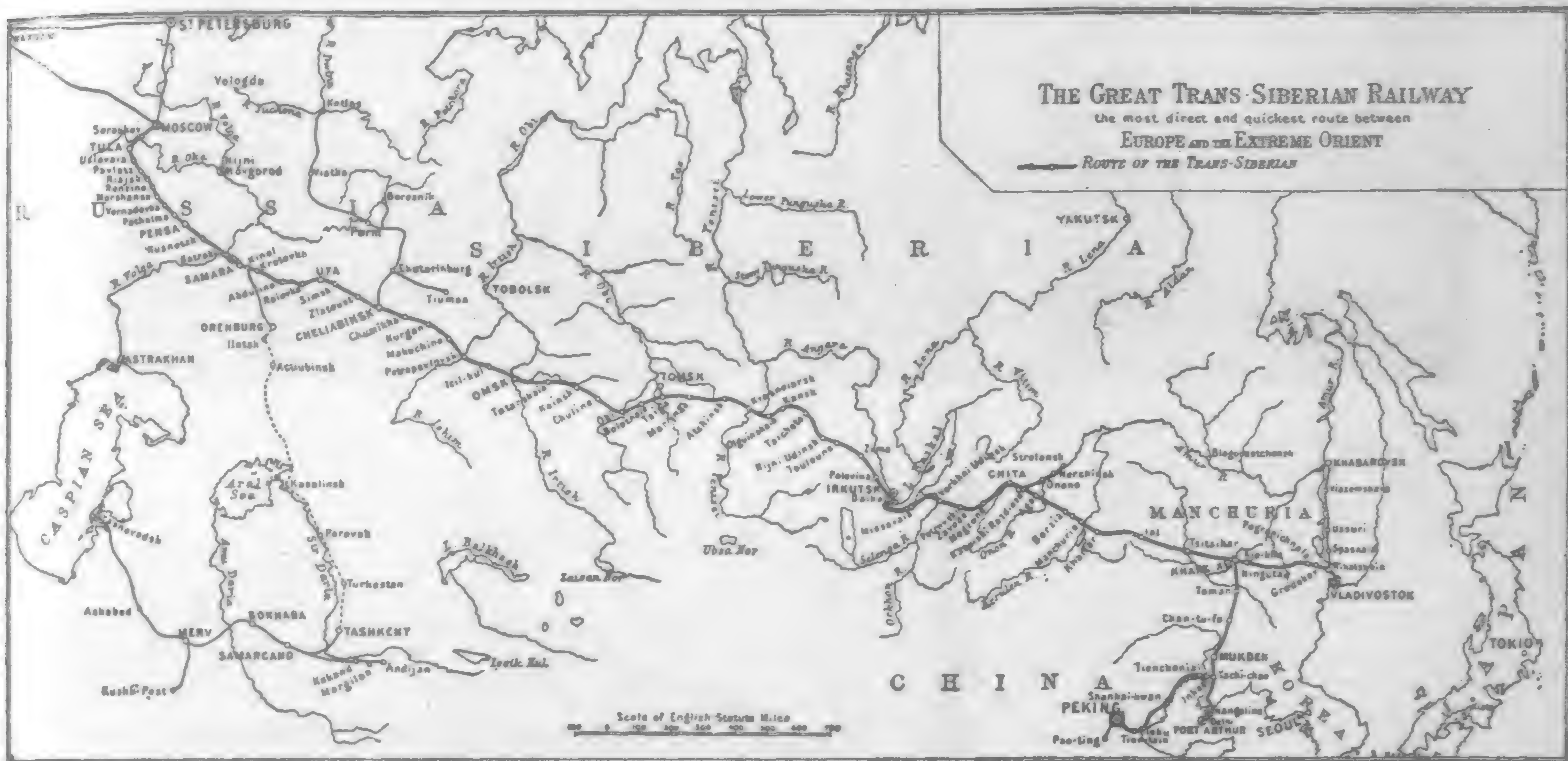
CHANDRACHEZ. A STATION ON C. E. RY. BETWEEN HARBIN AND MANCHURIA

CHINESE ENGINEERING RAILWAY.—STATION AND YARDS AT MANCHURIA



A TYPICAL STATION ON THE CHINESE ENGINEERING RAILWAY





of land by private parties, at a rate of a little over one cent gold per square foot, but the price was soon raised to three cents per foot and over; the official town was then laid out and immense building plans entered into, while in the river town the prices soared to over 17 cents gold per square foot, and many large and substantial brick buildings were erected. Within a year from the time this section was

were projected and erected. Breweries followed, vodka factories for the soldiers, meat packing plants and other large schemes were promoted. Prosperity was in the air. Everybody seemed to have money, and it was spent like water. Easy come, easy go. The Government was rich, and St. Petersburg was far away, and the high officials were too preoccupied with getting their share of the official "squeeze"

quartermaster's stores were stacked up for reshipment further south. For the Russian the war began when he left Harbin for the front and ended when he returned. Here the officers, left their families, some wives, some mistresses, and here the camp follower halted and went no further, here the gamblers and sharpers plucked the easy going and good natured soldier, and the commercial adventurer divided the loot



CHINESE EASTERN RAILWAY.—A TYPICAL STATION

opened to the public, it is estimated that over \$5,000,000 gold was expended in building operations by the public. Additions were laid out adjoining the administrative town, and the land was immediately taken up by speculators and resold at prices as high as \$5.00 gold per square foot. Nearly 3,000,000 roubles were received by the Railway Company from the sales of lands to private parties in a couple of years, all secured on an eighty-six years' lease.

Then followed the industrial boom. With a country rich in wheat and cereals, minerals and timber, flour mills, mines and saw mills

to pay heed to the petty "graft" of the lesser employees, and the saturnalia whirled on with no thought of the morrow, or of the day of reckoning. It was a good thing, and it had to be carefully nursed and preserved. Russia for the Russians, and Manchuria for the elect and out with the foreigners.

Then came the war. The immense armies of the Czar, transported across Siberia, came to a halt at Harbin and were here encamped and forwarded on to the front as their time came. Here was the real military headquarters, here was the base, in which the commissariat, and

with the mercenary official. To Harbin swarmed the women, who made it their abode, bringing with them the luxuries of Paris and the life and atmosphere of the boulevards. Theaters multiplied, cafés chantants were in full blast, drinking saloons and pleasure resorts abounded. No less than 26 music halls catered to the pleasures of the soldiers, running day and night without pause. The pace was swift, life was short, and extravagance and recklessness the order of the day. Champagne flowed like water. Magnums took the place of the ordinary pint or quart bottles. They cost more and the



HARBIN.—THE SECOND BRIDGE OVER THE SUNGARI





RAILWAY CAR SHOPS, HARBIN

money would go quicker. Officers ordered to the front squandered their savings or year's pay in one last wild orgie, drinking the cup of pleasure to the last drop, and those lucky enough to return started in to make up for the lost time and hardships at the front.

In the midst of the whirl, the industrial boom was born. Flour was expensive. The railway from Russia was choked with troops and urgent war material and the Japanese cruisers made it difficult to procure supplies from the sea, so with a country rich in wheat, flouring mills offered a solution, and the money for their erection was readily forthcoming. As long as the army remained the market was assured and large profits possible. It is calculated that 85 per cent of the fodder and provisions supplied were of local production. No thought seemed to be given to a return to normal conditions nor it appears was any attempt made to secure a market for the by-products. The investment was made on the demand created by the army and shareholders seemed to labor under the impression that the abnormal conditions would obtain indefinitely. Breweries, four of them were hastily erected; vodka distilleries, eight were placed in operation; meat packing establishments, brick making plants, saw-mills, a glass factory and other industries were rapidly financed and carried through. Profits were enormous, and expenses were saddled on the enterprises in accordance. High salaried Director Generals, Directors, Managers, Superintendents, and a host of sinecures were created and fastened on the companies before the real practical head of the concerned was reached. It is stated the administrative cost of the milling companies averaged 37 per cent of the total. Everything was lovely, and as long as the boom lasted, no one cared to look ahead for the hard times coming.

And behind all this whirligig of pleasure, vice, war, and industry stood the Russo-Chinese Bank, the magician that had waved the wand and brought it all about. Housed in its fine structure of stone, having its own heating plant and electric lights, erected at a cost of over 200,000 roubles, the Bank was the center, the hub around which Harbin revolved. Making no loans on realty, the management confined its efforts to advancing capital for current substantial business, and extending credits to Chinese merchants purchasing stocks of Russian goods, in addition to the regular exchange business. The results were profitable. Exclusive of purely government and railway business, the daily transactions exceeded 500,000 roubles just prior to the war, and this must have been increased owing to the swollen volume of trade. Cotton goods, sugar and other Russian products were thus introduced into the Manchurian markets. Imported free of duty through Vladivostok, favored with special rates on the railway and long credits by the Bank, Russian goods threatened for a while to secure a firm foothold. Encouragement of all kinds was given to the Chinese and Russian merchants, but to no outsiders. Harbin was to be the entrepot for Russian trade in the East, and the Open Door was only a dream of foreign diplomats that did not embrace Northern Manchuria. Millions were necessary to develop the scheme and millions were lavishly expended to further the adventure. Russia poured into her Manchuria Railway schemes over 300,000,000 roubles, and another 250,000,000 roubles in



RAILWAY SHOPS AT HARBIN



CHINESE EASTERN RAILWAY, MACHINE SHOPS, HARBIN



MACHINE SHOPS OF THE C. E. RY. AT HARBIN





HARBIN: THE MAIN STREET LEADING TO THE RAILWAY STATION. THE OFFICIAL HOTEL AND RUSSIAN CONSULATE GENERAL TO THE RIGHT

erecting the cities of Dalny, Port-Arthur, and Harbin together with the fortifications and other permanent improvements. How much of this vast sum was actually expended no one will ever know. When the time came after the war for auditing the accounts, a convenient fire destroyed the building containing all the records, so the rendered figures had to suffice without comment.

The Treaty of Portsmouth came as a surprise to Harbin. Another few months and the tables would have been turned and the dreams of Empire realized. For Harbin merchants it was difficult to realize that the end had come, and as the aftermath set in and the soldiers returned to their homes and business began to decline, they still cherished hopes of a bright commercial future. No systematic or determined effort had been made by the Russian merchants to secure the native trade, despite the efforts of the Banks and the authorities to encourage and assist this movement. It was much easier and more profitable to cater to the good-natured, pleasure-loving, spendthrift soldier, than to get out and build up a trade with the economical and impoverished native. The Bank and the Railway whose future prospects and success depended on solid native trade, catered to this element, but with only nominal success. Russian kerosene, oils, matches, sugar, cotton goods, and cheap novelties were the only items of a y importance dealt in. The purchasing power of the native was small, and Northern Manchuria is sparsely settled, and the market even for these necessities was limited. So with the eventual withdrawal of the Russian army, and the departure of the swarms of adventurers, camp followers and women, the merchants were face to face with the worst that could befall them—a return to normal times, and no market. The best customers for the flour mills, the breweries, and vodka factories were gone. The natives prefer their own crudely ground coarse flour, they don't drink beer or vodka, so the main industries of the city found no market for their output. The theaters, bereft of their patrons, closed; the music halls followed, and with the departure of the extravagant female spenders, the jewellers and department stores lost their best paying trade. Houses that were at a premium shortly before were vacated, new tenants came not, and a decline in real estate value followed. The costly block of stores, constructed in the center of the town for the largest Moscow merchants remained unoccupied. The brick factories and saw mills closed for lack of business. No one wanted to build. The glass factory suspended operation. The flour mills were forced to close down. One brewery remained at work. The hotels were emptied of their patrons. The large official hotel was converted into the offices of the Russian Consulate General. And so Harbin at last came to a realization of the exact state of affairs.

The town to-day presents an appearance of premature decay. Grass grows in the streets, no smoke issues from the tall chimneys of the mills. The large and costly stocked department stores open for the day and only a casual customer appears. Theaters have closed. Only one or two cafés chantants invite the midnight pleasure seeker, in place of the previous twenty. The houses are out of repair and the plaster ornamentation of many of the large buildings has fallen away disclosing the naked lath, revealing the fact that the buildings in part are only imitation stone. The town is exist-

ing on the expenditures of the railway. The salaries of the employees maintain the few stores, and the awarding of a contract for supplies is eagerly anticipated by the merchants. The railways and the Bank are making strenuous efforts to renew a spirit of confidence and promote trade with the natives, but there is a lack of co-operation on the part of the Russian merchants. But powerful as they are, the Railway and the Bank cannot carry the load indefinitely. There must be an end. The last financial year of the Bank was closed without the payment of the customary dividend. The Railway is losing at the rate of 5,000,000 roubles per annum. The budget for 1908 was based on an estimated income of Rbs. 15,857,793; expenses (including Rbs. 625,388 interest on bonds) were Rbs. 19,265,110, or an estimated deficit of Rbs. 3,407,317. The actual deficit is, however, claimed to be in the neighborhood of Rbs. 5,000,000.

Yet there is apparently no sign of retrenchment. The railway administration building swarms with employees, and extravagance is still the order of the day. War prices continue, or at least charges are higher in Harbin than in any other port of the Orient. Hotel charges, droshky hire, rents, and the general cost of living is at least double the cost in Shanghai.

The outlook for the Chinese Eastern Railway as a profitable commercial venture is a dismal one. Heroic efforts on the part of the management cannot make trade unless they are seconded by the merchants and have a sympathetic market. The stimulus given to the bean trade in Manchuria by the opening of foreign markets for this product, presents an opportunity the management is taking advantage of to divert the trade to Vladivostock. The through passenger traffic over the line is, however, rapidly increasing, as the Trans-Siberian route is becoming more popular each year as the "Short way to and from Europe." In fact many Americans from Manila are being attracted to the Siberian trip, as the quickest way to reach the Atlantic coast ports. The comforts of the through Express and the excellence of the service, added to the economy in cost, and time, are having the natural result of popularizing the route amongst all classes of travellers.

The building of the proposed Chinchowfu Tsitsihar line, in addition to the competition of the South Manchuria service will divert some

of this through traffic from Vladivostock, but the Chinese Eastern will still secure their share of the trade, at their own terms. The construction of the future extension of the Kalgan line to Kiachta will seriously menace the passenger traffic on this road and even then the Russian Government who owns the road will continue to dominate the situation and impose rates to counterbalance the loss to the Eastern section of her Trans-Siberian system. The traveller will benefit by the reduction in time, but it is hardly probable that this will extend to a similar economy in cost. It has been rumoured that Russia is willing to sell the Chinese Eastern Road to China by the time the Amur line is completed, but the money must be raised in the country. The Russian valuation of the property at something like \$85,000,000 gold, is of course excessive. If this figure was reduced to a reasonable basis of \$40,000 gold per mile, the total of about \$38,000,000 gold might be within the reach of the Chinese Government. In view of the immense importance of this line to China, to preserve intact her territory in the event of future hostilities between Russia and Japan and if there is any truth about the hoard of the Imperial Treasure within the Walls of the Forbidden City, it would seem that the Regent ought to gladly part with some of this unproductive wealth to regain ascendancy over one of his richest provinces. Russia's purpose in reaching the sea at Vladivostock can be attained by the Amur line to which construction she is committed, and if she still harbors any designs on China's integrity, she can always slice off a province or two far from the interference of other Powers along the Mongolian and New Dominion frontiers. And when the Kiachta Kalgan Line is completed, the approach to Peking is also opened to her. The Amur Line will serve as a military line to the Primorsk within her own boundaries, and for all commercial business the Chinese Eastern Railway will remain as a short cut across. The latter road in the hands of the Chinese would be of no value, unless Russia consents to interchange of traffic over the Ussuri and Trans-Baikal sections. The construction of the Chinchow Tsitsihar line and the repurchase of the road from Russia, would restore China to full control of her provinces and act as a preventive against any rupture between Japan and her late antagonist, taking place on Chinese soil.



C. E. RY. BRIDGE OVER THE SUNGARI AT HARBIN





SOUTH MANCHURIA RAILWAY—THIELING STATION



KWANGTCHULIN STATION BETWEEN HARBIN AND KWANGCHINGTZE



TRANS-SIBERIAN RAILWAY.—THE ICE BREAKER AND RAILWAY FERRY STEAMER "BAIKAL," AND FLOATING DOCK



THE C. E. RAILWAY.—THROUGH THE KING-HAN MOUNTAINS

## CHINCHOWFU-TSITSIHAR RAILWAY

The preliminary steps have already been taken by China to encompass her agreement with Japan and reach her northern frontiers by a railroad of her own, which will be so far outside the restricting provisions of the Peking Agreement that Japan can have no just cause for protest, from a commercial viewpoint, as being detrimental to the interests of the South Manchuria Railway. As in the case of the defunct Fakumen imbroglio, China, feeling her own

weakness to carry her point, is reported as having entered into negotiations with a group of British and American capitalists to finance and construct an extension of the Imperial Railways of North China, from Chinchowfu northwards through Eastern Mongolia to Tsitsihar, the capital of Heilingskiang Province. Here surveys have been made for the Tsitsihar-Aigun line. This project when carried out will complete China's proposed Northern Trunk Line, place Peking

into direct communication with her most northern frontiers, and in connection with the country to be served by the Amur Railroad. China is apparently determined to carry her point in regard to this road, and it is difficult to see what reasonable objections Japan can interpose. Commercially the South Manchuria and the Eastern Mongolian Line would hardly compete, as the country served could readily be made to support two or three lines, especially if the bean trade continues to increase in volume as it has the last two years.

Politically or strategically such a road would still be a menace to Japan's position in Manchuria, and in the event of future hostilities with Russia, or even with China, would materially weaken her position. The possibility of another struggle between Japan and Russia is always present, for Russia has signified to the world her future intentions by the building of the Amur Railway. Japan's answer is the ultimatum to China, in regard to the Antung-Mukden line, and forcing a new concession from China, for the Kirin-Hunchun Line. It is difficult to view the railway struggle in Manchuria from any viewpoint other than political.

With all existing Manchurian lines in the possession of Japan or Russia, China's right to build her own line to the extreme northern end of the province, is incontestable, as only by such a road under her own control could she hope to maintain neutrality in the event of a future conflict. There is no good reason why the scene of a future conflict between Russia and Japan should be in Chinese territory, unless the possession of that territory is aimed for as a result of the struggle. With the integrity of China insured by all the leading powers of the world, the construction of a purely Chinese trunk line through the disputed territory, is a strong factor for peace, and provides the only means for foreign powers to effectively come to China's aid, in the event of any infraction of this doctrine. With the proclaimed neutrality of China in such a conflict, the operations would have to be confined to the Maritime Province of Eastern Siberia, and the only effective means of safeguarding neutrality is by the construction of the Chinchowfu-Tsitsihar-Aigun Trunk Line.

It would be folly for China in her present defenseless position to undertake such a serious enterprise, but with British and American capital to carry out the scheme, China effectively safeguards her interests and checkmates any designs on her territory.

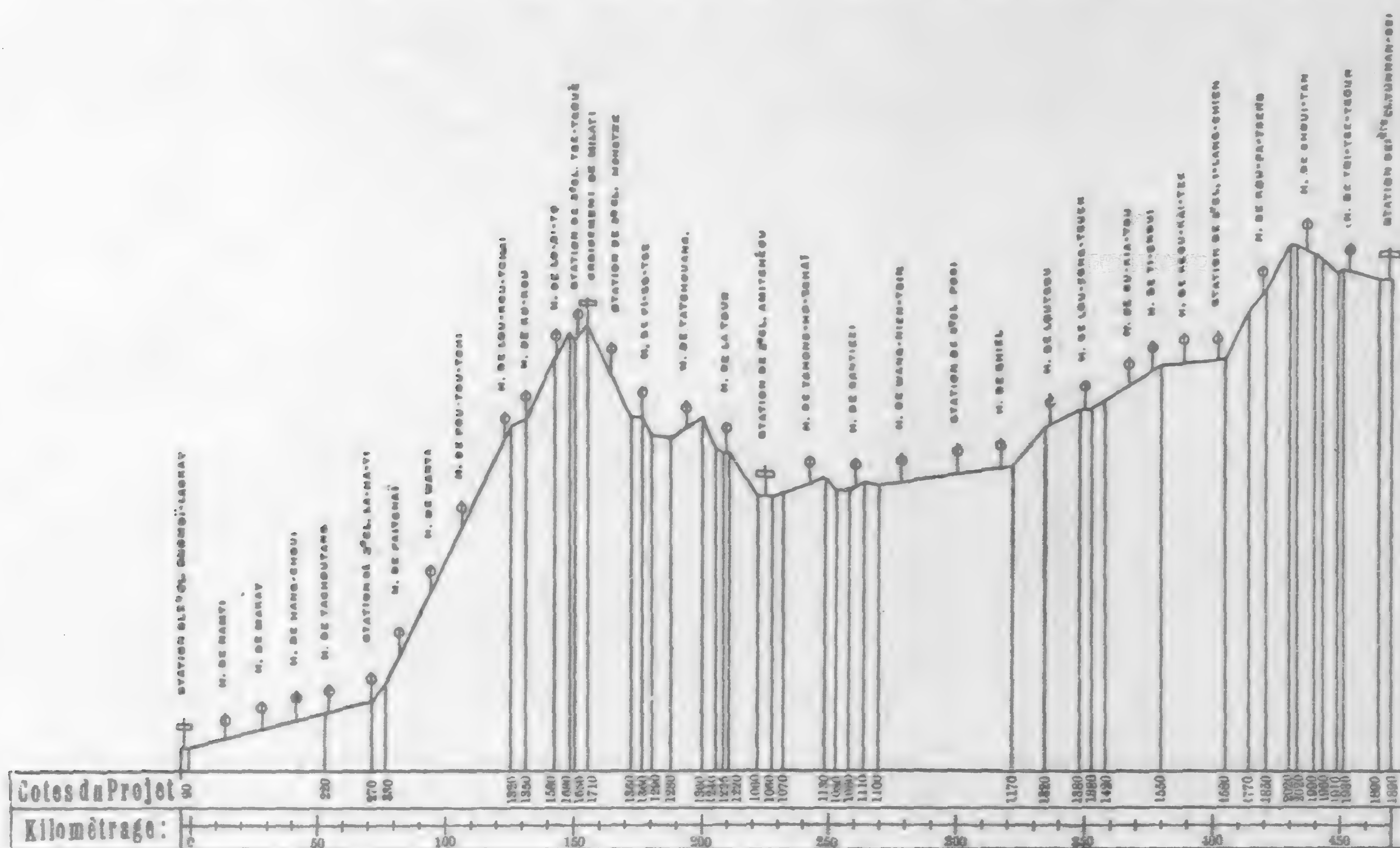
The negotiations for the construction of the Chinchowfu-Tsitsihar Line have already called forth a notification from Japan that while she does not intend to oppose China's action, she will maintain her own rights under the recent China-Japanese Treaty. It is also reported that Russia has declared that if China persists in building the road with British and American capital, she may demand as compensatory advantages the right to the concession of the Kiachta-Kalgan Railway across Central Mongolia.

Recent reports from Peking are to the effect that the Board of Communications has already ordered the survey of the Kalgan extension across Mongolia to Kiachta, prompted by the Russian efforts to persuade China to permit her to build the line.

Interesting developments are sure to follow, and if Japan feels that her position is threatened by the Chinchowfu-Tsitsihar Line, or Russia seizes the opportunity to demand compensatory advantages, China will have only added to her troubles, and may precipitate another crisis in her affairs, into which Britain and America will be drawn. The Manchurian situation will then be definitely settled one way or the other for the infinite relief to all parties concerned.



# THE YUNNAN RAILWAY



(From Trade Report of the Imperial Maritime Customs)

# PROFILE OF THE COUNTRY BETWEEN YUN-NAN-FU AND LAOKAY

France conquered Tonking with the fixed idea of gaining ready commercial access to China throughout Yunnan province. This hope remained but a dream for years, but it is now an accomplished fact, despite short-sighted fears and British rivalry in railway construction

When the French railway from Tonkin to Yunnan was taken in hand, the British in Burma sought to offset it by starting a rival line from there into the province to secure commercial and political influence in South China. But the British line stopped short at the Yunnan frontier, and the French line held the field and has been completed as far as Yunnan, the first objective point.

"On the 9th and 10th April, 1898, an exchange of despatches took place between M. DUBAIL, Chargé d'Affaires of the French Republic, and the Tsungli Yamen at Peking, embodying the following Agreement: the Chinese Government concedes to the French Government, or to the French company whom the latter may designate, the right to construct a railway from the Tonkin frontier to Yunan-fu, the capital of this province, the Chinese Government having no further obligation than to surrender the necessary land for the line and its dependencies. These conventions are to cement and strengthen the ties of friendship which unite France and China. The French Government thereupon designated, for the construction and exploitation of the line from Tonkin to Yun-nan-fu, the Compagnie Francaise des Chemins de Fer de l'Indo-Chine et du Yunnan, a company which had been started by the leading financial establishments of France, and this company, in its turn, entrusted the work to the Société de Construction des Chemins de Fer Indo-Chinois. The alignment of the future railway was studied by the delegates of the French Government, and subsequently by the delegates of the Compagnie Francaise des Chemins de Fer de l'Indo-Chine et du Yunnan. The line starts from Hekow, on the border connecting there with the Tonkin line to Haiphong and its branches, and ends at Yun-nan-fu. The gauge of the line is 1 metre (3 feet 3 inches). Once the main line has been completed, and if the parties concerned deem it expedient, after an understanding has been arrived at,

between the high provincial authorities on the one side and the French Minister and the Wai-wu Pu on the other, as to the mode of procedure, branch lines connecting with the main line may be constructed. According to the Agreement signed at Peking on the 29th October 1903 all engines (machinery), supplies (stores), and materials necessary for the construction and exploitation of the railway are to be exempt from Import Duty. The original survey resulted in a decision to follow the Red River as far as Hsin-hsien and then to continue along the valley of the Hsin-hsien River on to the Mengtsz plain; from here the line was to proceed by way of Lin-an, T'ung-hai and I-liang-hsien to Yun-nan-fu. A thorough study of this first plan revealed many technical difficulties, and, after full consideration, the company, in November 1902, submitted an alternative scheme, according to which the line leads from Hokow through the Nam-hsi Valley on to the Mengtsz plain, and thence by way of A-nii-chou to Yun-nan-fu. In January 1904 the French Government gave its sanction to this new *tracé*, and shortly afterwards work was started along the whole line. The total length of the line from Laokay to Yunnan is about 465 kilometers or 287 miles, and from Laokay to Haipheng 248 miles, a total distance from the sea to Yunnansen of 535 miles. The main engineering difficulty was the 1600 meter ascent from the level of the Red River to the plateau, and the cutting of a bed along the almost vertical walls of the Namti River valley.

Before the French Government finally sanctioned the new tracé, a commission of mining engineers was sent into the province to study the question as to how far the altered project would affect the facilities for the transport of the output of the mines which, at one time or another, would be exploited; the result of their examination showed that no difference was apparent, the one project being as favorable as the other for the conveyance of the mineral products. Manifold and varied have been the difficulties of the company, and among these, notably, the scarcity of labor which prevailed at the outset along the entire line, and in addition, the unhealthy climate in the

lower region of the Nam-hsi Valley. There are nearly 140 tunnels, the longest of which is about 600 metres; a large number of viaducts, bridges, and galleries have also been constructed.

The hardest task of all was that of laying the rails up the valley of the Nam-ti River, a fever stricken tract with a climate so deadly that the country is almost without inhabitants. This fatal valley has swallowed up millions of treasure, and multitudes of human lives. The number of coolies who perished there in laying down the rails, is set at forty thousand.

The people on the table-land have a deadly fear of this valley. Neither reward nor high pay can tempt them to set foot there. Labourers had to be recruited from distant parts. Coolies from North China could not stand this valley of death. Only Canton Chinese and low country Tonkinese could be found to brave the climate.

The superintending staff—almost all of them Italians—stood the climate well and made high profits—estimated so far at 30 millions of francs. Very few Frenchmen are employed on the line.

Leaving the inhabited section of Tonkin at Yen-be, the line runs to Mongtse over a distance of 300 kilometers (160 miles) through a country which is a wilderness and will ever remain so—being unhealthy and barren.

The original estimate for the cost of the line was Francs 101,000,000. A construction company was organized with a capital of 12,500,000 francs and received a government guarantee of 3,000,000 francs for 75 years, which produced a capital of 76,000,000 francs. The Tongking Government subscribed the balance of 12,500,000 francs to meet the required capital estimate.

The enormous expense of building the line through the Namti Valley, and the unusual amount of cutting and tunnelling ate up all the original funds of the concessionaire company, which collapsed last year for lack of money. For awhile French opinion endeavored to shift the responsibility of this excessive cost on to the shoulders of the Chinese Government, alleging that the stoppage of work was due to the desertion of the Chinese laborers from fear of the revolutionary bands and that when the laborers had quit, the engineers were also



forced to suspend. But the truth soon came out, as the matter was taken up in the French Chamber of Deputies, and a resolution offered providing for the supply of sufficient funds to complete the work. In January of this year the French Foreign Affairs Committee presented its report upon the bill authorizing the government of French Indo-China to raise a loan of \$10,317,000 gold in order to meet the expenditure charged to the budget of that dependency in connection with the construction of the Yunnan Railway. In consequence of the financial and other vicissitudes of the enterprise since the concession for building the railway was granted by China eleven years ago, and various alterations in the plans, the initial cost of the work will amount to \$32,216,000, as compared with the original estimate of \$18,687,000. Of this increase in the estimated cost a sum of \$10,025,000 is to be borne by the colony and the remainder by the company to which the concession has been assigned. The hope was expressed that work would be superintended with greater care in the future in order that the recurrence of costly errors be avoided. The constructors reached Mengtsze last April and with the opening of this section it became possible to conduct traffic over a considerable portion of the line. The line has since reached Yunnan-sen.

The loan for \$10,317,000 (Fcs. 53,000,000) is guaranteed by the State, bears interest at 4%, and is redeemable in 65 years. To this annual charge of \$112,680 gold (Fcs. 2,120,000) must be added the interest on the bonds amounting to francs 10,488,962, which were issued by the concessionary company and are equally guaranteed by the Colony and the States, is francs 506,306. Thus the total charge will not be more than about francs 2,630,000 (\$526,000 gold).

"It is very unlikely," according to the report of the Budget Committee of the Paris Chamber, "that the State will be called upon to make good its guarantee. Though Indo-China is not yet out of a social and political crisis, the Committee considers that a wise administration will successfully achieve this, and expresses every confidence in M. Klobukowski without dissimulating the difficulty of his task. They report with satisfaction that from the financial point of view the position of the colony has again become healthy and even good. The figures for 1907 show a surplus of \$4,179,000, and those for 1908 a surplus which will very probably exceed \$3,500,000. Beyond this, the Tonkinese section of the Haiphong-Yunnan line has already entered upon a dividend-paying era, contributing f.400,000 to the colony in 1908. It is therefore clear that the new loan charges authorized are far from surpassing the financial abilities of Indo-China."

According to optimistic French reports "the commercial outlook of the Yunnan Railway is very bright. The traffic in European goods on the opened sections of the line is increasing every year. It only needs reasonable charges for the railway to draw to itself all the trade between Yunnan and the Tonkin coast.

"The trade of Yunnan consists mainly in trafficking opium and tin for European articles—chiefly cotton goods. The tin export amounted, in 1907, to 48,710 piculs, against 45,146 piculs, in 1906. The tin is shipped to Hongkong, where it finds ready sale.

"Of the exports from the province, tin forms 81 per cent., opium 18 per cent., and smaller products one per cent.

"Exploration and research show clearly the value of Yunnan for trade purposes. It has a fruitful soil, and a healthy climate. Rice produces three crops a year. Sago and maize are grown where rice is unsuitable. Iron, silver, copper, tin, zinc, coal and gold are found in large quantities.

"The Yunnanese are a peaceful and industrious people, and number over eleven millions, but they are scattered thinly over a vast area. The completion and extension of the railway will, however, draw a flow of immigration from the valley of the Yangtze River thither."

But there are others who maintain that the line will never pay unless it is extended on northwards to Szechuen Province with its 50,000,000 inhabitants, thus making Haiphong, which is 300 miles nearer than Shanghai, the port for this rich territory. Most business men in



(From Trade Report of the Imperial Maritime Customs)

MAP OF THE COUNTRY BETWEEN YUNNAN-FU AND LAOKAY ON THE CHINA-TONKIN BORDER, SHOWING ROUTE OF THE YUNNAN RAILWAY

Tonkin frankly admit that if the line stops at Yunnansen its upkeep will be a very heavy burden indeed—even though the French Government shoulders it all. The outlook is the more serious from there being not the least chance of the Chinese Government buying up the railway, of which there was once a prospect.

The attitude of the Chinese Government against further extensions of a political line practically destroys any hope of its prolongation northwards, except under the condition that France surrenders her exclusive rights, and permits the line to be controlled and operated by China. China has the whiphand, and unless force is applied, there is little hope of the railway being a commercial success.

With the completion of the railway, vague reports are coming from Yunnan about the military activity on the part of France. A recent native report reads:—

"Lately the French have been sending officers to Yunnan and Kwangtung to make maps of the important strategical positions and smuggling arms and ammunition to all points along the Yunnan Tongking Railway. The Wai wu-pu has now requested the French Minister to instruct the French authorities in Indo-China to recall the military spies and remove the arms from the Chinese territory.

The fact that the French are increasing their Army in Indo-China is rousing the greatest suspicions in the minds of the members of the Wai wu-pu as to their object and they are negotiating with the French Minister for a definite agreement that neither China nor France shall station troops along the Yunnan-Tongking Railway and that the Chinese section shall be guarded by the Chinese police only. The Board has at the same time wired the Viceroy of Yunnan to train the soldiers in his province in case of emergency."

So here again are laid the seeds for future trouble to China over a commercial concession originally given up to cement the ties of friendship with France.

Here we have a meter gauge road 535 miles long, from Yunnan to the sea, with enormous engineering and labor difficulties to overcome built at a cost of \$32,216,000 or an average cost of something over \$60,000 per mile. And from the labor troubles, the road compares in a way with the Chinese Standard gauge Kailan line, rising 2200 feet in less than 100 miles, built at a cost of \$50,000 per mile. Of course this is only a general comparison, but the figures assist in arriving at an appreciation of the Chinese ambition to do their own work, free from foreign interference.



# IMPERIAL PEKING-HANKOW RAILWAY



PEKING-HANKOW LINE.—THE YELLOW RIVER BRIDGE

Of all the enterprises in China in which Belgian capital has taken a share, the most important is the Peking-Hankow Railroad.

This line is 1,200 kilometers long and constitutes, with its future extension from Hankow to Canton, the Great Central Railway of China, which will one day form the trunk line of all the other railroads of Central China, and which will link the Gulf of Pechili with the Gulf of Tong-King—2,500 kilometers—passing through Hankow, the largest port of the Yangtsze Blue River, which is situated at the junction of this waterway and the Han River.

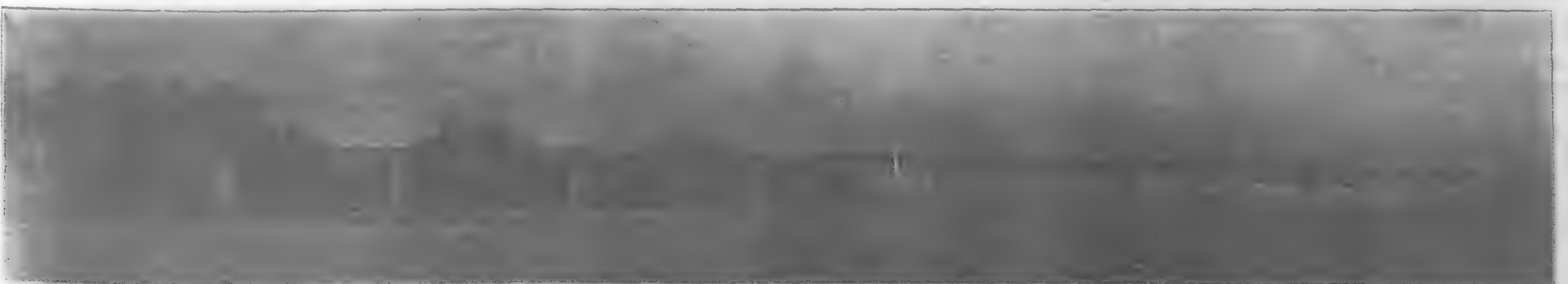
The Hankow-Wuchang-Hanyang agglomeration—the knot of the entire Chinese system of railroads—had formerly 6,000,000 inhabitants, but there remain now no more than 2,000,000 since the terrible Taiping Rebellion which desolated this region. Owing to her unique location on one of the finest rivers of the world, in the center of a valley with a population of 100,000,000 people, nothing, how-

ever, should prevent Hankow from returning to her ancient importance as a trade center. The same may be said of other cities as railroads replace the almost extinct imperial highways and the obstructed canals.

In 1889, Chang-Chih-Tung, then Governor of Canton, formulated a clear project in a report to the emperor at Peking. His proposals were considered as most valuable and an imperial decree sent Chang to the viceroyalty of the Two Hs of which the capital (Wuchang) and Hankow face each other on opposite sides of the Yangtsze. His special mission was to preside over the construction of the southern portion of the Peking-Hankow line, while Li-Hung-Chang, the Viceroy of the Province of Pechili, was looking after the final construction of the road in its northern portion. Chang-Chih-Tung must have on this occasion felt very keenly the great difference there is between the completion of a colossal undertaking and its execution. Years passed by, and the clever

viceroy saw no possibility whatever of how to carry out his stupendous project. He knew well that the creation of such a railroad had, besides its economic conclusions, a very great political complexion. He knew that if China wished to prevent foreigners from possessing a new and dangerous weapon, she must construct her future railroad absolutely with her own resources. But to do this money was necessary, and it was impossible to obtain money in China.

About the end of 1896, Chang-Chih-Tung and Li-Hung-Chang caused the Tsung-li-Yamen to understand that the latter had much miscalculated the resources of China when it proposed that this national enterprise should be carried out without the help of foreign money. The two promoters of the project received authority to grant the concession to a company of the "most favored country." The only hope of carrying out the scheme was to secure the assistance of foreign enterprise. Several com-



PEKING-HANKOW RAILWAY.—240-METER BRIDGE



panies were organized and submitted proposals, and finally these simmered down to the consideration of a proposal from a group of American financiers, one from British capitalists, and another from the Belgian Syndicate. At this time Taotai Sheng Kung Po was director-general, having been placed in charge by Imperial edict, in 1896, of the projected line.

When an American Syndicate represented by Senator Washburne sent out a survey party under the direction of Captain Rich, it looked as though the concession would go to America. This party, starting in 1897, completed its work the following year and submitted maps and estimates of cost. H. E. K. S. Low, now managing director of the Tientsin-Pukow Railway, was a member of this survey party. With the conclusion of the survey and the presentation of the plans and estimates negotiations were resumed with the American group.

It might be said here that the American group was actuated in securing the concession on purely business grounds, free from any political designs on Chinese territory, and held out for terms which the Chinese were not willing to grant. While the negotiations were hanging fire, a Belgian Syndicate appeared in the field and proposed to accept the concession along lines which the American Group was not ready to accede to. The result was that the Chinese closed with the Belgians.

It is not my purpose to enter into any of the intricate political questions involved in this concession. These have been fully treated in an excellent work on "Railway Enterprise in China," by Mr. Percy Horace Kent, a book that everybody interested in Chinese Railways should read carefully.

The American interest lost out to the Belgians through ignorance of China and things Chinese. The former were bent on securing all their rights preliminary to the agreement, the latter accepted the Chinese view of what ought to be, signed the agreement, and then arbitrated the differences afterward. Sheng King Pao in his memorial to the Throne said that the American terms were "too hard."

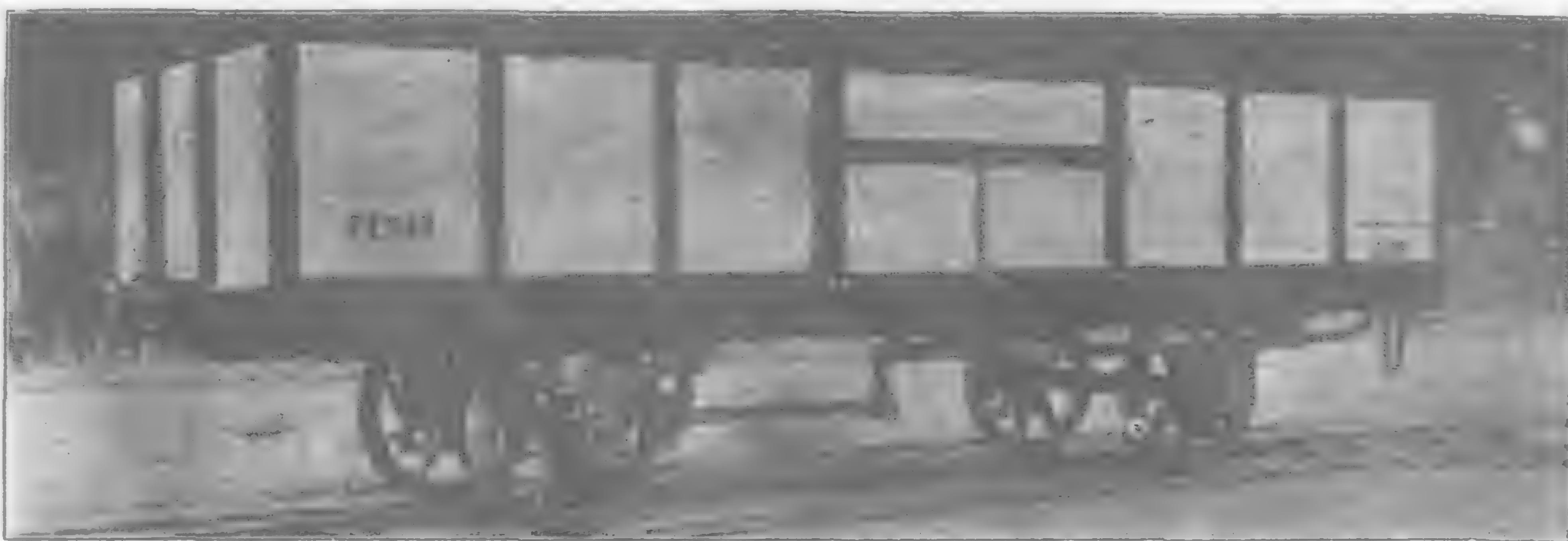
He then turned towards Belgium, "a very wealthy, small country, whose power is negligible," as they said in their report of December 1897. They chose this country, guided by the above political considerations.

On another side, while the negotiations were taking place, M. Gérard, minister for France at Peking, thought the moment had come to remind the Tsung-li-Yamen about Article 7 of the Franco-Chinese Treaty of June 9, 1885, which stipulates that "in the construction of railroads, China will use all her influence to attract French industry." The political power of France was, for the Belgians, a precious auxiliary to protect, when necessary, their involved interest. The result was, therefore, a fusion of Belgian and French capital in one company.

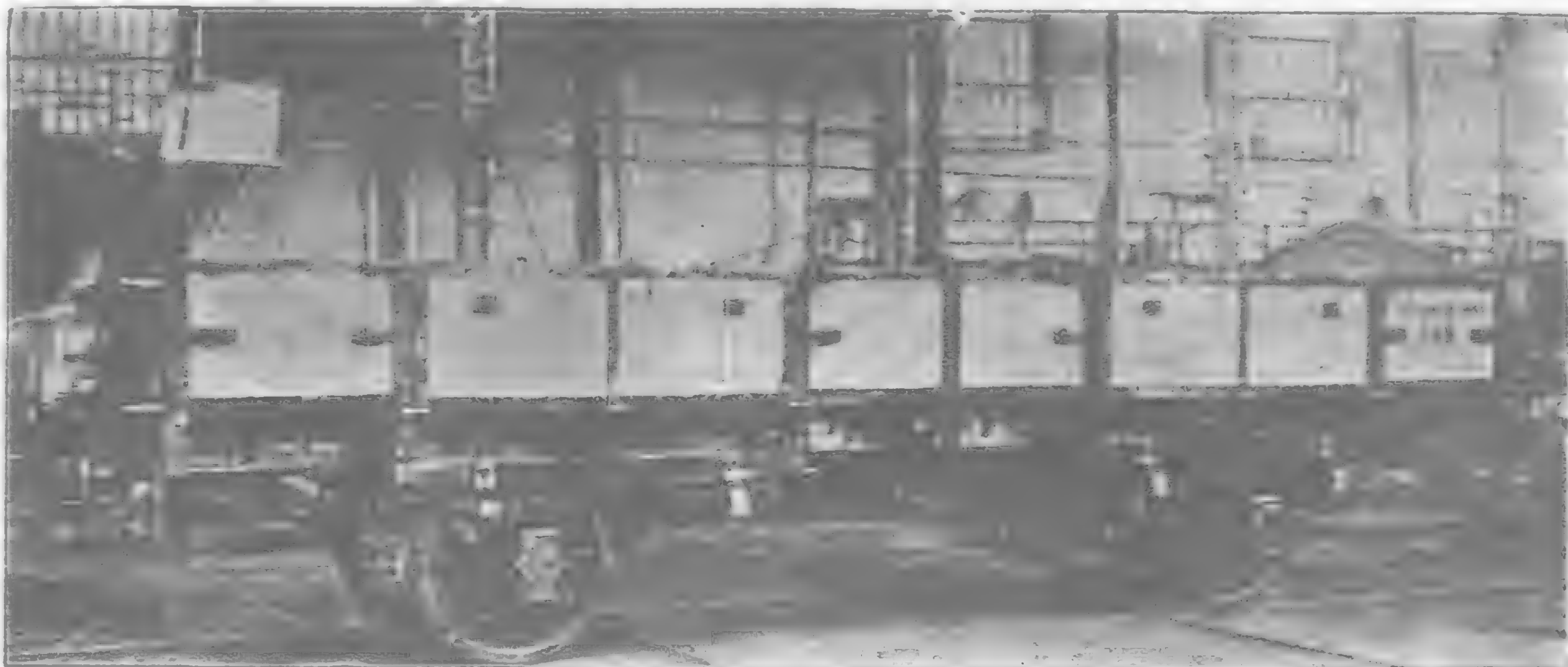
Since 1897, a preliminary contract had been signed between the Chinese Government and the Franco-Belgian Syndicate for the construction of the railroad, and on June 26th, 1898, despite a rather strong opposition from Great Britain, the Belgian minister at Peking, Mr. Joostens, obtained the definite concession of the road for the *Société d'études de chemins de fer en Chine*.

The Chinese say that the American and British proposals were too precise in regard to certain stipulations or appeared so to Chang Chih-Tung and Sheng Kung Pao, and especially so in view of the fact that the Belgian Syndicate were willing to meet every wish of the Chinese Government without question. The result was that the agreement between the Belgian Syndicate and the Chinese Government was signed in June 1897 by Sheng Kung Pao. The Syndicate soon found, however, that in order to financier the project in Europe, it would be necessary to secure improved terms from the Chinese government.

In this connection it might interest the readers to know the nature of the contract that linked the Tsung-li-Yamen to the Franco-Belgian Syndicate just mentioned. The Manchurian system of railroads had been built by a Russian company, and the German system by a German company. Both of these companies had been



PEKING-HANKOW RAILWAY.—BELGIAN GOODS WAGON



PEKING-HANKOW RAILWAY.—LOW SIDED CAR FROM BAUME MARPENT, BELGIUM



PEKING-HANKOW RAILWAY.—BRIDGE OVER TAO-HO



PEKING-HANKOW RAILWAY.—BRIDGE NO. 5 OVER THE SHA-HO



PEKING-HANKOW RAILWAY.—PU-TA-HO BRIDGE





PEKING-HANKOW RAILWAY.—BRIDGE OVER THE ICHANG-HO



PEKING-HANKOW RAILWAY.—CONSTRUCTING BRIDGE OVER THE SHA-HO



PEKING-HANKOW RAILWAY.—BRIDGE OVER THE SHA-HO

created at the risks and perils of the concessionaries, without any guarantee from the Chinese Government. It was altogether different with the concession granted to the Franco-Belgian Syndicate, which obtained not only the support of Chinese Imperial Company of Railroads, conducted by Chang Chih Tung, but also the official patronage of the Peking Government, which gave it financial support by working out the following combination:—

In order to facilitate the operations of the contracting company, China decided to issue a state loan. The specifications having been accepted and the amount to be spent approved by competent authority, the Chinese Government remitted to the syndicate bonds at 90 per cent sufficient to cover the expenditures decided upon. The syndicate had only to negotiate these bonds. The money obtained by this operation constituted the capital with which to build the road for the Peking Government, the contracting syndicate receiving as remuneration for its trouble 20 per cent of the net profits of its undertaking. Such was the ingenious mechanism which served as a basis for the convention concluded, in 1898, between the Chinese Imperial Company of Railroads and the syndicate. It presented this considerable advantage that the concessionaries had, in reality, not to trouble themselves about the formation of a construction capital; they had only to secure sufficient credit in order to convert into money their Chinese paper. It was thus that in March, 1899, a loan amounting nominally to 112,500,000 francs, called the 5 per cent Chinese Loan of 1898, was issued at the same time at Brussels and in Paris. The transaction seemed even then so brilliant that the loan, in Paris alone, was covered ten times over.

The loan was to be amortized within twenty years after 1909. The Chinese Government were given the right to repay the loan in or after 1907, thereby cancelling the agreement. The Imperial revenue and profits of the railway were made security for the loan and the financial arrangements were placed in charge of the Russo-Chinese Bank. In this connection, there is every reason to believe that French and Russian influence combined to the furtherance of the Belgian Syndicate's interests during these negotiations with the ultimate purpose of securing a link in the Peking-Hankow for a railway through the empire. A proposal was made by the China Association that the British Government should guarantee a loan covering the construction of the line in order to checkmate Russia and France. These efforts were of no avail. The Belgian Syndicate secured a working agreement covering a period of 40 years with full control of the line. When the loan was floated the fact that over three-fifths was subscribed in Paris confirmed the belief in the injection of Russian and French influence. And it was about this time that Russia renewed her efforts to secure a concession for a railway from Peking to some point on the Siberian line, but without success.

*Surveys and Commencement of Construction.*—While the negotiations were going on, Chang Chih-Tung had already had the first surveys and drawings made based on the report and estimate secured from the American Engineer, Capt. Rich. Previous to 1899 and before the Belgians took over the work of construction, the Imperial Railways of North China had surveyed the line south from Lukouchiao to Pao-tingfu under the direction of Mr. Kinder and Mr. T. J. Bourne in 1896, and the work practical-

ly completed. The road, for a short distance from Hankow, goes along the Yangtze, then traverses the Hu-pei Plain. From Honan-Chau—at the 153d kilometer post—the line zigzags between steep hills forming scenery to be compared with the finest Japanese landscapes. After Sinyang, it traverses another charming plain, a little before reaching the Hwang-ho (Yellow River), where is erected on the summit of a hill a temple consecrated to the divinity of the river.

Work was begun in 1899, simultaneously on the Peking terminus and on that of Hankow. It was very actively carried on under the direction of the efficient Belgian engineer, M. Jean Jadot, as chief engineer of the Pei-Han. It was necessary to build a great number of bridges, some of which reach a height of 420 meters.

*Great Yellow River Bridge.*—At the beginning of December, 1904, on the Hankow side, rails were laid up to the Hwang-Ho River—500 kilometers. Across this waterway the gigantic Hwang-Ho River bridge has been constructed. This structure is 3010 metres long. The construction of this bridge was a unique feat in engineering and one on which the eyes of the engineering world was earnestly fixed. It is about 6.25 meters above high-water level, and is of steel throughout, the massive girders being supported on sets of screw-driven tubular piles. The steel piles were screwed into the bed of the river by means of hand capstans manned by squads of coolies. In fact all bridges are of steel and like construction, while the approaches and other masonry work are of concrete. The bottom end of each pile has a tooth point with a large inclined blade above it, not unlike the tip of a corkscrew. To each point was clamped an enormous grooved pulley, around which was wound a wire hawser. One end was led to one of the capstans, and then the coolies heaved away and the work of screwing began. The rotary motion of the piles, with the corkscrew blade, naturally screwed the pile down into the mud till the pulley was level with the platform on which the workmen were standing. When the pulley reached this platform, another length of pile was bolted together, the pulley raised to the upper flanges, and the screwing resumed. When the piles had been screwed to a sufficient depth, say 12 to 15 meters, the water was pumped out from the interior. The pile was then filled with concrete. Wooden piles were then driven around the current side of the piers in the shape of a triangle, with the points to the current, as a protection to the structure. Huge beds of tree branches, lashed together with wire, were then sunk around the steel piers, and on these beds hundreds and hundreds of tons of rock were thrown. This was reckoned to give more solidity to the river bed where the piers were driven, and possibly prevent the river washing away the foundations, if such the shifting bed of the river can be called. The steel piles were placed in sets of four, six, eight, and ten, and each pile is joined by stanchions and girders of great strength, and finally each set of piles is spanned by an enormous girder on which the rails are laid. Half of this bridge was built in France, the other half in Belgium.

The river bed is one gigantic quicksand and during the construction of the bridge many piles were sucked under as well as platforms supporting machinery. Breakwaters of stone have been built along the banks of the river to prevent the undermining of the bridge foundations, and either end of the structure is protected with stone-faced dykes to prevent the water washing away the dykes.

The Governor of Honan recently called attention to the state of this bridge. It seems that the stream is undermining the pillars supporting the bridge and the safety of the structure is threatened. Aside from this the bridge is said to be altering the current, so that serious trouble may be looked for. Two officials were sent from Peking to make a thorough inspection and carry out such relief measures as they may deem advisable.

The construction of the Peking section of the line went on apace with that of the southern section, and the conjunction was formed at the Hwang-Ho River bridge.





PEKING-HANKOW RAILWAY.—PEKING STATION

*Roadbed, Tracks, Gauge and Rolling Stock.*—The roadbed is well-built and solidly ballasted, over which the most powerful locomotives may run at full pressure. The gauge is the same as that prevailing in Belgium, and the rails were all submitted to a most severe test at Hanyang where they were mostly manufactured. These tests were those enforced by the Belgian Government for its railways. The weight of the rails is 37.6 kilograms per meter. The rolling stock is modern and plentiful, and some of the trains which run through from Peking to Hankow and *vice versa* are equal in appointment and speed to many similar trains on European lines. There are three classes for passengers, the cars for the 3d-class being open. The fare is about 3 cents. The rates for 1st and 2d-class are about 9 and 6 cents per kilometer.

During 1906 the net return per kilometer (0.62 of a mile) over the entire line was \$2,065, United States currency. The gross receipts during 1906 were (converted on the basis of Mexican peso at \$0.52) \$3,945,760, of which \$1,378,680 was from passengers, \$2,489,080 from freight, and \$78,000 from freight (service). The operating expenses were \$1,320,280, leaving net receipts of \$2,625,480. The interest on the loan at 5 per cent amounted to \$1,136,720, the interest on Chinese loan and bonus to \$270,400, leaving a gross profit of \$1,218,360. From this was deducted \$121,836, as 10 per cent for reserve fund, and a net profit of \$1,096,524 remained. This makes the coefficient of exploitation 30.68 per cent.

The percentage of expense in the central administration was 11.39; exploitation and operation, 19.57; traction and materials, 46.38, which was high owing to cost of coal; tracks and works, 22.66. The number of 1 ton (2,204 pounds) kilometers was 266,329,358; average run of 1 ton, 150; average return of 1 ton, \$1.40; average return of 1 ton per kilometer, \$0.0092.

The net profits of the line in 1907 amounted to about \$2,000,000, and these handsome returns decided the Chinese Government on exercising its right to repurchase the road according to the provisions of the agreement. The Concessionaires were entitled to 20% of the net profits of the undertaking during the currency of the loan, but the Chinese Government was entitled to redeem the loan in September, 1907, and annul the agreement with all further participation on the part of the concessionaires in the profits. The situation was forced on the Chinese Government as a purely business proposition considering the great future value and profits of the line. It was better to pay, say £225,000, being 5% on the loan of £4,500,000, than to pay 20% of the annual profits to the Belgian Syndicate.

In view of the criticisms directed against H. E. Sheng Kung-Pao for the awarding of the concession, the provision which gave the

Chinese Government the right of redeeming the line prior to the commencement of amortization in 1909 reflects great credit for shrewd foresight.

"The line was constructed as cheaply as possible, and this was done deliberately with the intention of making it possible to earn dividends as soon as its construction was completed," says the *Shanghai Times*. "This was considered a wiser plan than to spend so much on the construction of the line that it would be impossible for it to pay dividends."

"Careful estimates state that, after allowance for the charges of running expenses and interest, the line will repay the cost of its construction within fifteen years. During this time, the roadbed can be improved, better station houses built, and more comfort provided for passengers."

Negotiations were entered into with the Belgian Syndicate with a view to issuing a new loan to redeem the old one, secure absolute possession of the line to the Chinese authorities and eliminate the payment of the great percentage of profit. These negotiations were successful and on Jan. 1st, 1909, the management of the Pei-Han line was taken over by the Chinese authorities at Peking.

The capital of the Peking Government for the line between Lukaochiao and Paotingfu is Taels, 5,620,000 and the loan from Belgium is Francs 125,000,000 and the loan to redeem it Francs 50,710,000. The Revenue for the year 1908 was about \$9,970,000. The expenditure for running the trains \$3,620,000; for the works about \$880,000 and \$175,000, the price of rolling stock paid out of the original loan now paid back. The interest paid out is about \$2,824,000 and also the sum of about \$408,000 paid to the Board of Finance as interest on the capital for Lukaochiao and Paotingfu line. The profit made in 1908 is about \$3,117,000 but after deducting the twenty per cent interest to the Belgian syndicate and also the reserve fund there remains the sum of \$2,244,000 as net profit.

The Chinese Government promised the Belgian Syndicate an extra bonus as soon as the accounts of the Peking-Hankow Railway were audited by a commission consisting of the representatives of the Chinese Government and the Belgian Syndicate.

A special bonus of \$141,000 has recently been paid over to the Syndicate out of the profit account. On the payment of that bonus, Belgium's connection with the Peking-Hankow Railway ceased entirely.

The president of the Board of Posts and Communications has reported that to develop the railways would require the sum of Tls. 15,000,000 during the next three years over and above the net profits from the railways. The most important and largest item is that for the building of the four branch lines of the Peking-Hankow

Railway (from Tingchow to Tanghsien, the North bank of the Huangho to Muhlan, Yencheng to Chou Chia Kow, and Matauchen to Wangkintien); and the construction of the line from Hwo Hsiang Chen to Yuchow will cost 3,600,000 taels, besides the money required for the new carriages, hotels and stations, and for acquiring and working coal mines. His Excellency Hsu, concludes that if the above things are to be done a foreign loan is absolutely necessary.

At about the same time the Board of Posts and Communications reported to the Throne that from Nov., 1907, to the end of the 34th year (Feb. 1909) the Peking-Hankow, Chengting-Taiyuen, Pein-loh, Taokow-Chinghwa, Shanghai-Nanking and Canton-Kowloon Railways have altogether cost £3,750,000 and Tls. 29,646,100 odd. The profits of the Peking-Fengtien and Peking-Hankow Railways and interest on the money deposited in the banks amounted to Tls. 11,705,000 and the sums of £3,760,000 and Tls. 18,250,000 odd were borrowed from the Board of Finance, the Ta Ching Bank, the Hongkong and Shanghai Banking Corporation, the Bank of Indo-China and the Bank of Communications. The balance in hand was therefore Tls. 308,900 odd which, however, has since been spent.

So if the proposed improvements are carried out further further loans are necessary.

### THE SHENSI RAILWAY

Continuing on westwards from Tingkuan to the provincial capital of Shensi (Hsiangfu), it is proposed to construct a line with native capital. This province, however, has not taken kindly to railways and it may never be built if provincial funds are relied on for the enterprise. Much talk has been indulged in, some surveys made, and it is reported that two Japanese engineers have been engaged to superintend the work. However, the native investor don't know anything about railways, and like his brothers in other parts of the Empire entertains a reluctance to hazard money in enterprises under official control. The officials propose to build a trial short line in the province to see how a railway works and will employ horses and mules for awhile, instead of steam, until the Peinlo Road is brought up to Tungkwan. Any old towns will do to connect up and set things moving but strange to relate the native investor is still shy about placing money in a scheme of such doubtful advantage. But this transition stage can only last a short time, as the Central authorities at Peking are keenly alive to the importance of the scheme to link Hsiangfu up with the Peihai Railway and bring it into closer touch with the capital, and if the province will not come to time, a foreign loan will sooner or later be floated or the road built from the profits of some working government line.



# IMPERIAL CHINESE TIENTSIN-PUKOW RAILWAY

## NORTHERN SECTION



TIENTSIN-PUKOW RAILWAY. (NORTHERN SECTION).—OFFICIAL OPENING CEREMONIES

The original concession for this railway, from Tientsin to Chinkiang, was granted in 1897 to a Chinese by the name of Yung Wing with permission to enlist the aid of foreign capital. Yung entered into negotiations with British and American capitalists for a loan, but the occupation of Kiaochao by the Germans, together with the special railway privileges in Shantung ceded to them by China, effectively blocked further hope of connecting Tientsin with the Yangtze through Shantung, without German participation. The contract entered into by Yung Wing for a loan of \$27,500,000 gold was therefore cancelled, as there was no way of getting around the German preferential rights in Shantung, or of altering the route to avoid passing through that province.

In 1898 Germany and Great Britain arrived at a satisfactory agreement in regard to their railway policy in China, the former agreeing to confine activities to the Hoang Ho valley, and Great Britain to the Yangtze, and at the same time a working arrangement was formulated for the financing and construction of the Tientsin Yangtze trunk line, in which Germany would share to the extent of such part of the line as traversed her sphere of influence, and



TIENTSIN-PUKOW RAILWAY.—NORTHERN SECTION

Great Britain would take up that part from the southern boundary of Shantung to the terminus at Chinkiang. Owing however to the

Shanghai-Nanking Railway project which later assumed definite form, the southern terminus at Chinkiang was altered to a point opposite Nanking on the Yangtze called Pukow, an old deserted walled town of no importance, except its proximity to the southern capital and as connecting the two systems more effectively than at Chinkiang lower down the river and the proposed terminus of the Pukow-Singyang road connecting the Eastern Yangtze systems with the Peihai trunk line. The preliminary negotiations for the concession were finally completed in May 1899, in which the Deutsch-Asiatische Bank representing the German interests was to finance, construct, equip and operate the northern section of the road from Tientsin to the Southern Shantung border, for and on behalf of the Imperial Chinese Government, and the British and Chinese Corporation acting for British interests was to take up the Southern Section on identical terms. The Boxer troubles suspended further progress and it was not until June 1902 that negotiations were again resumed with China for the conclusion of the final agreement, and in January 1908, that this document was formally signed and sealed.

The Loan Agreement was for £5,000,000 at 5%, for a term of 30 years, amortization to commence in ten years in half yearly installments, the Chinese government reserving the right to redeem the loan any time after ten years by the payment of a premium of 2½% or £102.10s. on every £100 bond.

The loan was secured on the lekin and internal provincial revenues of Chihli, 1,200,000 Haikwan Taels per year, of Shantung, 1,600,000





Haikwan Taels per year, and by the Nanking Lekin of 900,000 Taels and the Huai-an Native Customs in Kiangsu of 100,000 Taels per year.

The loan was to be issued in two installments the first of £3,000,000 placed on the market in March 1908, at 98½. The issue was subscribed for four times over, and a considerable portion was subscribed for by Chinese in Pekin and Tientsin. The provincial government of Chihli, Shantung, Kiangsu and Anhui hold £260,000 in bonds exclusive of those purchased by private native investors. The price to the Chinese Government under the Loan Agreement for the 1st installment was 93% of the face value and on future installments the Chinese government was to receive the same rate as paid by the public less 5½ points commission to the financial syndicates.

The conditions of the loan agreement were distinctly favorable to China. The control of the funds and expenditures were confided to the managing director of the line, and a modern system of accounting provided for subject to inspection by a representative of the syndicate at any time, to verify the payments.

The construction and control of the railway was held in the hands of the Chinese government, and the British and German chief engineers were subordinated to the control of the Chinese managing director. The purchase of materials was also arranged for on a most favorable basis for China. In fact, the conditions surrounding the construction of this road, threw all necessary precautions and obstacles in the way of graft or extravagance, and with honest directors there was little leeway for abuse of authority or scandal in the management.

The Germans have taken the credit for establishing the precedent of these so called Pukow terms in dealing with China, while British financiers have held to the opinions that they fail to sufficiently safeguard the investor in a country where official honesty is viewed from a standpoint utterly opposed to Western ideas on the same subject.

Work on the northern section of the road under German supervision was officially commenced on June 30th 1908, when the Viceroy of Chihli and the managing director Lu hai-huan with elaborate ceremonies turned over the first sod at Hsi-ku, a suburb of Tientsin. H. E. Lu Hai-huan, one of the most respected officials of the Empire, was appointed director general of the two sections, and Taotai Li Te-shun (Alfred Li) was made managing director of the Northern Section, and Taotai K. S. Low, Director of the Southern end. Mr. Dortmuller, of the Technical staff of the German Shantung Railway, was appointed chief engineer of the German section, and Mr. T. W. T. Tuckey, who had 20 years' experience on the Imperial Railways of North China, was selected for the similar position on the British end.

Work on the northern end was vigorously prosecuted from the beginning. The managing director, Li Teh-Chin, was selected for his knowledge of German. A large tract of land was optioned for in the vicinity of the Tientsin city station of the I. R. N.-C. for the terminal depot, yard warehouses and shops. Materials for the line were all purchased in Germany, and it is alleged that in some instances the goods were purchased and on the way before public tenders were invited in Tientsin.

It is difficult pending the result of investigations now being conducted at Tientsin to accurately gauge the many charges of corruption and fraud alleged to have been practiced under the tenure of office of Taotai Li Teh-Shun. It has been charged that he agreed for a financial consideration to change the terminus of the road to a place near the German settlement at Tientsin, and that coal contracts were placed at excessive rates to a colliery controlled by Germans, and that he acted in collusion with German friends in the purchase of lands, sharing the profits with them. Taotai Li is also charged with employing an undue number of German engineers and assistants at excessive salaries and expense. According to native reports, the result of an official investigation under the direction of H. E. Hsu Shih Chang, the President of the Board of Communications, disclosed peculations to the extent of Taels 3,500,000 during the tenure of office of Director Li. The situation is decidedly un-



TIENTSIN-PUKOW RAILWAY. (NORTHERN SECTION).—TURNING THE FIRST SOD.

pleasant for Germany, and a hard blow to the Pukow terms, she was so proud of. No accusation is made against German participation in this huge scandal, and they strenuously deny smallest ground for associating German officials with the charges of fraud in connection with Li's defalcations. The end of the disagreeable occurrence was the impeachment of Taotai Li, and in his fall he dragged down his superior H. E. Lu Hai-huan, against whom no breath of suspicion has been stirred. The Throne, however, held him responsible for his subordinate's misdeeds, and charged him with lack of proper supervision.

It is admitted that the German chief engineer, held an equal position with the managing director in his control over the accountant, and all foreign employers, despite the provision of the loan that the director was solely responsible for the funds. This participation, however, ended here, for it could not extend to the actual disbursements, which were held exclusively by the director. The German official was powerless to actually disburse funds, so in the absence of collusion, the sole responsibility must be shouldered by the Chinese official. H. E. Hsu Shih Chang, president of the Railway Board and one of the really honest and capable officials of China, has been authorized by the Regent to take over the duties of the director general of the road in the place of H. E. Lu Hai-huan. H. E. Hsu fearing a repetition of scandals has commenced his duties by concentrating financial control of disbursements in his own hand, and hereafter the managing directors of the two sections are prohibited from paying out funds exceeding Taels 500 without special sanction from him. The action while one of precaution, is a severe reflection on the honesty and capacity of Taotai Low of the Southern Section, and places great difficulties in the effective dispatch of business. Work on the Northern Section, however, has been pushed ahead notwithstanding the official scandals at headquarters. The greatest engineering problem on this section is the bridging of the Yellow River above Tsinanfu, the provincial capital of Shantung, where conditions similar to the bridging of the same river for the Peihan Railway is encountered. The estimated cost of this bridge alone is Taels 2,000,000. Otherwise the country is level and there are few engineering difficulties of magnitude to contend with.

It is expected that the entire line will be open for traffic within three years. It will pass practically through the same region as that served by the Grand Canal. It is more than 600 years since the Grand Canal was completed by the Mongol Emperor, Kublai Khan, and rightly regarded as a work of great importance, providing as it did, an interior line

of water communication between Hangchow and Peking. For centuries it served as the main artery of commerce between the north and south, and the grain and silks sent to the Imperial court in tribute by the rich provinces of southeastern China were carried over its waters. Most of this transport in recent years, however, has been done by steamships going by sea. The canal has not lost its usefulness, but the section through Shantung has never been an unqualified success, and is in need of repair now.

The line will follow the course of the Grand Canal from Tientsin to Techou, on the border of Shantung Province, the course being a little west of south. From Techou it will go southeast to Tsinan, the capital of Shantung, crossing the Yellow River near this city. From Tsinan it will run, in a southerly direction, through the mountainous region of Shantung to Ihsien, near the southern border of that province, where the northern and southern sections unite. It will probably pass through Tai-an in Shantung, not far from Mount T'ai, the sacred mountain of China, and the home and tomb of Confucius. The Southern section will pass from Ihsien, southwest, to Suchau, in northern Kiangsu Province, crossing the Grand Canal about midway between the two cities. Suchau is in the bed of the old Yellow River, a low-lying region of lakes and streams, but, a very fertile country, and the source of a variety of opium highly prized by the smoker. From Suchau the line will run southwest to Suh, in Anhui Province, thence a little east of south to Funyang, crossing the Huai River just north of that city. From Funyang it will follow, in a general way, the old highway built by the founder of the Ming dynasty from Nanking to K'aifeng but diverging a little to the west to pass from Funyang through Ting-yuen to Chuchou. This highway has, from very ancient times, been the route taken by caravan traffic between Nanking and northwest China. Pukow, the southern terminus, is a small town opposite Nanking, at one time on the north bank of the river Yangtze but now some two miles inland, the intervening ground being a reed marsh formed by the deposits of the river.

The region traversed by the Tientsin-Pukow line is not one of the richest in China, but there are many fertile districts and the mountainous region at Shantung doubtless contains mineral deposits of value. Agriculture, mining, and manufacturing will all be estimated when cheap and rapid transportation is substituted for the slow and expensive methods now employed, but the chief value of the line will be, perhaps, its usefulness for through communication between the capital and the wealthy and populous regions of Central China, devoted to rice growing, sericulture, and manufacturing.



# THE PEINLO RAILWAY

(Kaifengfu-Honanfu or Kaifeng-Lu-Yung Railway)

The contract for the construction of this line was signed in Shanghai, 1904, between H. E. Sheng Kung Pao, the director general of the Imperial Chinese Railways, and Mr. Armand Rouffart, the representative of the Cie General de Chemins de Fer et de Tramways en Chine. Article 1 of this Agreement reads:—

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has asked, in a report, the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of—

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan.

The construction of this railway has proceeded with great activity. This line runs from east to west and follows the Chinese high road between Kaifengfu and Lo-Yung (Honanfu). Lo-yang has a most important inland trade and is situated at the intersection of several high roads. The railway will be another artery calculated to add further vigour to its trade and commerce.

Sometime ago, the Belgian Government applied to the Governor of Honan for the grant of a concession in Lo-yang and the Governor has taken in hand the work of laying out a new concession to the west of the white horse temple at Lo-yang.

The first section of the railway is between Kaifeng and Cheng-chow on the Pehan line and a great trade centre. This section was easy of construction, there being little in the way of engineering difficulties.

The passenger and freight charges on this line are the same as on the Peking-Hankow Railway, or as follows per kilometer: First class passengers, \$0.018; second-class, \$0.013; and third-class, \$0.006. First-class freight per ton, \$0.083; second-class, \$0.026; and third-class, \$0.017.

The second section runs to Szechui, a fairly large market down at the foot of the Tin-man Mountain, not far from the Yellow River.

The section between Szechui and Heishikwan presents numerous difficulties. It passes through the mountainous region of the Timan Shan. Heishikwan is close to Kung-hsien, an important sub-prefectural town. Eleven tunnels some of them being 2,000 feet in length were necessary on this section, and 6 large iron bridges. The bridges were erected at Chin-kou, one at Shui-kou, and three at Shie-ti-tun.

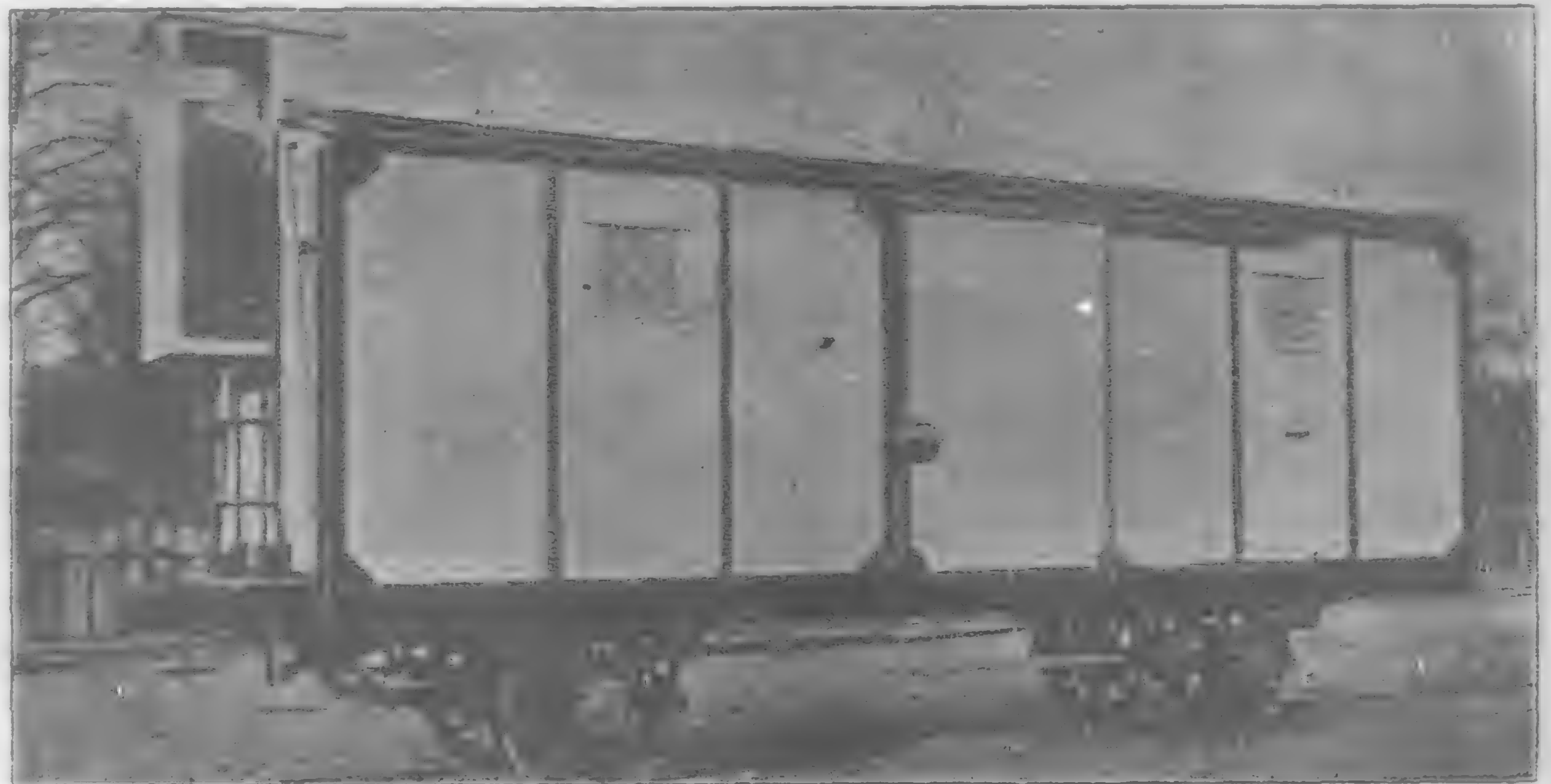
It was at first thought to give the construction of the bridges to a foreign contractor, but subsequently the Chinese decided to build their own bridges. A steel girder bridge about 1,500 feet in length spans the Lo-ho, an important tributary of the Hoang-ho.

Construction on the Chengchow-Honanfu section, was subject to frequent delays, as the rails, which are 12 meters long, and can not

the foundation work was not as difficult as it might have been.

The fourth section between Heishi-kwan and Honan-fu, the terminus, has been completed and trains operating daily.

The extension of the Peinlo Railway westwards to Shenchow, and Tungkwan, at the bend of the Yellow River, and thence to Hsianfu, the capital of Shensi, will be taken in hand as soon as funds are arranged for. Tungkwan is also the proposed southern terminus of a line from Taiyuanfu. The extension of the Peinlo to this point is of the utmost importance to connect with the Shensi provincial road to the capital at Hsianfu. On the construction of this link depends the success of the Shensi project. The distance is about 480 li and the estimated cost about \$3,500,000 gold. A foreign loan will probably be negotiated for the con-



PEINLO RAILWAY.—BELGIAN COVERED GOODS WAGON (BAUME-MARPENT)

be made in China, were delivered by the Belgian mills very slowly. The rolling stock was sent out from Belgium knocked down and set up in the shops at Chengchow.

The bed of the Lo-ho being fairly rocky,

struction of this extension, and it is reported that Mr. Willard Straight representing the American group of financiers has already made overtures to the authorities at Peking to furnish the required funds.

## THE CHEN-TAI RAILWAY

(Chentingfu-Taiyuenfu Railway)

The railway branching off the Peking-Hankow line at the small station of Chentow, several miles to the south of Chentingfu, traverses the hilly country to the west, and terminates at Taiyuanfu, the provincial capital of Shansi. Its official Chinese name is the Chen-Tai Railway, but it is also as well known by the name of the Shansi Railway or by its French translation "Ligne du Chanse." This line of 242 kilometers in length was probably the most difficult to construct of any of the roads in the Empire. Traversing a very mountainous country, the line has steep gradients, many curves and long tunnels. The highest point reached in the line is 3,500 feet above sea level, and at its western terminus at Taiyuanfu the elevation is 2,600 feet. The air line distance between Chentow and Taiyuanfu is 120 miles; by the railway it is 150. There are 25 stations on the line a somewhat larger average than found on the main Peking-Hankow road.

It was in 1897 that the Russo-Chinese Bank and the Comptoir d'Escompte sent a French engineer, M. Hivonnait, into the province of Shansi to study its mineral resources and determine the route of a future railway.

The concession for this road was secured by the Russo-Chinese Bank in May 1898, but on resurvey the original loan agreement was increased from 25,000,000 francs to 40,000,000 francs, the bonds bearing interest at 5% per year and redeemable in thirty years. The loan is secured on the undertaking and guaranteed by the Imperial government. The Société d'Etudes de Chemins de Fer en Chine, the Belgian company holding the concession, and building of the Peking-Hankow Line, were given the contract for the construction of the

Shansi line, and its engineers commenced operations in 1903, laying the first rail in 1905 and the road opened to through traffic in October 1907. The conditions under which the concession was granted and the mountainous and difficult nature of the country did not justify the company in incurring the cost of a standard gauge road, so the meter gauge was adopted with 60 lb. rail. This difference in gauge prohibits a junction with the main line, and the interchange of cars, compelling the complete transfer of through freight at the Chentow terminal. A few years ago this place was only a village of 200 Chinese, it has now a population of several thousand, and a foreign hotel under foreign management.

The engineering difficulties of the line have involved the construction of some 22 bridges or viaducts, one of 17 arches, and 19 tunnels, several of which are over 300 meters in length.

In the eastern or lower part the line winds in and out among terraced hills and cuts through great banks of loes deposit—these "cuttings" requiring skilful terracing and draining to prevent rapid erosion, etc. Further west the hills became more formidable and call for several tunnels while the mountain streams crossed give play for the bridge-builders' skill. Coal is encountered about midway on the line. It is fine quality anthracite and is mined in great chunks about 10"×12"×16" in bulk. The mines are within the concession of the Peking Syndicate, and the railroad does a good business in coal transportation.

The engineers who constructed the road are M. Georges Espanet, engineer-in-chief, and M. Millorat, adjunct engineer-in chief, and M. Jacques de Lapeyriere, first assistant engineer



# CANTON-HANKOW RAILWAY

## (Yueh-Han Railway)

The original concession for the construction of this line was held by the American-China Development Co. under a contract signed at Washington in April, 1898, by H. E. Wu Ting-fang acting as representative of H. E. Sheng Kung pao, the Director General of Railway.

The final terms of the Agreement called for a loan of \$40,000,000 gold, to run for 50 years, to be issued at 90 and bearing 5% interest. Provision was however made for earlier redemption. The bonds were secured on the property and guaranteed by the Imperial Government. The construction of the line and expenditure of the funds was entrusted solely to the Company, who also received 5% commission for their services of supervision and purchasing material. The Company also received 20% of the net profits of the line after operation for a number of years.

The American Syndicate was organized by the late U. S. Senator Calvin S. Brice who also directed the negotiations, William Barclay

Sam Shui line which has been constructed and in operation for 5 yrs. An important feeder leading from Ping Hsiang to Chu Chou, about 60 ms., has been constructed, and is now in operation. This brings the products of the Ping Hsiang coal mines, owned and operated by H. E. Sheng Kung Pao, to Chu Chou, where they will be transhipped to the Han Yang Iron Works also owned and operated by Sheng.

**SURVEY OF THE LINE.**—A reconnaissance survey was run over the entire line by Wm. Barclay Parsons in 1898-9. Since then preliminary surveys have been run from Canton N. nearly 150 ms. and 100 ms. of same permanently located. On the N. end preliminary and location lines have been run from Yo Chow, at the mouth of the Siang River, to Chu Chou, the point of intersection with the Ping Hsiang branch. This is a distance of 150 ms., and is probably the portion which will be first constructed. This section, in connection with

Canton and Fatshan, except the 6° curve of 10°3 at Fatshan, which was put in order to place the line close to the town. The maximum grade is 5-10 of 1 per cent and is used at five stream crossings between Canton and Fatshan and several times over low ridges between Fatshan and Sam Shui.

**ENGINEERING DIFFICULTIES.**—The only engineering difficulties on this division are the bridge foundations, which were made by first driving piles to a depth sufficient to give a bearing power of 12 tons on each pile. The required resistance to penetration was usually obtained in a strata of coarse quartz sand which lay from 30 to 50 ft. below the surface and varied from 3 to 7 ft. in thickness. In some cases a bearing power of only 6 or 7 tons could be obtained, in which cases special designs were made by putting in more piles and covering more ground. The piles were cut off below water-level, all the silt taken out from between them, and coarse stones were rammed in to



CANTON-HANKOW RAILWAY.—INTERIOR OF 3RD CLASS CAR



C. H. R.—3RD CLASS CAR FROM THE WASON MFG. CO.

Parsons was the Engineer, and Cary & Whitridge the attorneys. The syndicate included all the great rival banking firms of New York, which are generally antagonistic to each other. J. P. Morgan, J. Rockefeller, Mr. Cassett, the Vanderbilts, Mr. Harriman, Mr. Gould, Mr. Sage, Mr. Hill, Sir William Van Horne, and other leading financiers all signed Mr. Brice's application for the concession.

The survey party under Mr. Parsons arrived in China in the fall of 1898 and after considerable obstruction and delay completed their reconnaissance survey and first rough estimate.

The following summary of the work accomplished up to the time of the purchase of the concession by China, is from the pen of the late C. W. Mead, C. E., the Chief Engineer of the road, and was written for the FAR EASTERN REVIEW.

Leaving Canton the line runs N. up the Pearl River about 30 ms. where it strikes across to the Pei River following the valley about 100 ms. to Shao Chou, thence up the Wei River to near its headwaters, where it crosses a range of mountains on to the headwaters of the Lei River which flows N. into the Siang and Yangtze; then following the Lei, Siang and Yangtze valleys to Wuchang on the S. side of the Yangtze opposite Hankow. The line traverses a country rich in both agricultural and mineral resources, and thickly settled except in the mountainous districts and some of the flooded sections of the Yangtze and Siang River valleys.

Approximately the main line is 750 ms. in length, and there are about 150 ms. of branches, of which the most important is the Canton-

the Ping Hsiang-Chu Chou branch will deliver coal and coke to the comparatively deep water navigation of the Yangtze whence it will be distributed along the lower Yangtze by boat.

The Canton-Sam Shui branch for the first 14 ms. out from Canton runs over a flat country of alluvial formation and entirely covered with rice fields, cane, and vegetable gardens. This country is cut by many tidal streams some of them being 125 ft. wide and very deep. Beyond Chai Bin the country assumes a broken aspect, and many low ridges separate the various valleys across which the line runs. These ridges are mostly of soft sandstone, only one reef of hard rock being found, and that was a black basalt at Wong Ting See, 3 ms. E. of Sai Nam. The entire country except the ridges would be subject to overflow except for dykes which are about 7 ft. near Canton, while at Sam Shui the main dyke is 30 ft. high. All the streams crossed are navigable for some kind of craft at some time during the year, and this fact forced an ascending and descending grade at the principal crossings.

The first 10 ms. of this branch to Fatshan is double-tracked and the last 20 ms. is single-tracked. The double-tracked portion has 13 ft. centers and 31 ft. roadbed; is laid with 75-lb. steel rails on steel ties and ballasted with broken stone on the Canton end and sand on the Fatshan end. The single-tracked line has a roadbed 18 ft. wide, is laid with the same weight rails upon Japanese oak ties, and is entirely sand ballasted.

The alignment is very good having a maximum curve of 4° and none over 3° between

within 2 ft. of their tops upon which concrete was built to sub-grade and granite bridge seats put on. The spans are of 10, 15, 20, and 30 ft. deck girders, and 40 and 60 ft. through girders. There is one bridge across the Sainam River with 96-ft. spans and three other bridges on the line 120 ft. long, which have one 60-ft. and two 30-ft. girders. Several box and arched concrete culverts were used, and arched road crossings below grade. Short spans were used for economical reasons as steel laid down at the bridge sites was costly, while the cost of foundations was low owing to cheap material and labor. The ease in handling short spans with unskilled labor was a large factor, and all these reasons tended to an opposite economic condition to that found in Europe and America.

Only one permanent station was constructed and that at Fatshan. All others were small and temporary and put in at an average distance of 2 ms., thus giving the traffic an opportunity to develop and decide where stations were necessary. The Fatshan Station is a fairly handsome 2-story structure built of brick and wood and the cost was about \$15,000 Hongkong currency.

A blacksmith and repair shop was established at Shek Wei Tong, which is complete enough to make all necessary assembling of rolling stock for the division and keep it in repair. This shop is entirely operated by Chinese workmen under the direction of Mr. J. Lind.

**SUPERSTITION AND IGNORANCE MENACE CONSTRUCTION.**—Many difficulties were encountered in the construction of this branch mainly on account of the superstition of the people and





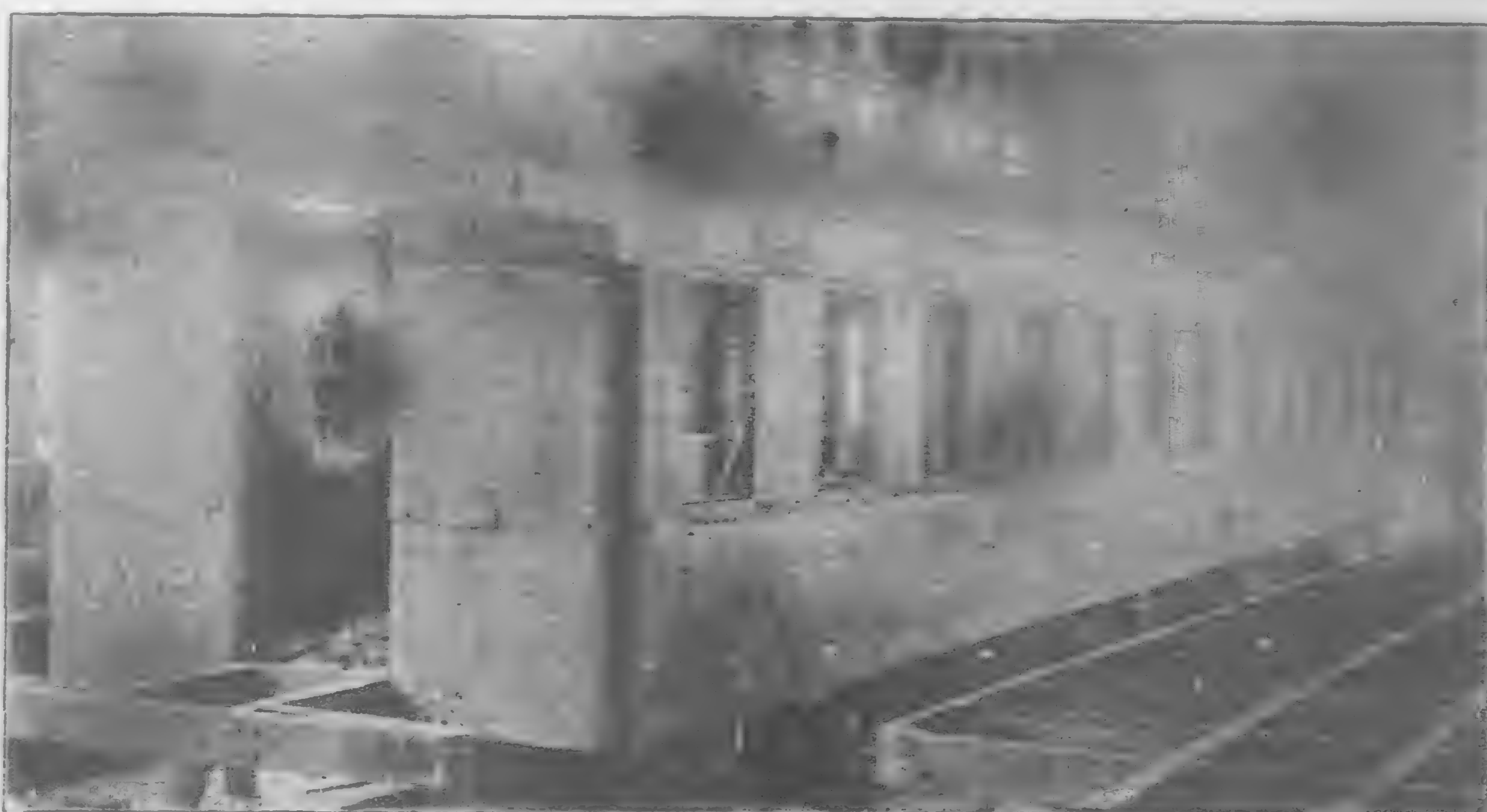
IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE  
MACHINE SHOP



MACHINE SHOP SHOWING FRAME OF 60 FOOT STEEL CAR ON THE  
RIGHT UNDER CONSTRUCTION



CANTON-HANKOW RAILWAY.—STEEL  
UNDER FRAME CARS BUILT AT SHEK-  
WAI-TONG



CANTON-HANKOW RAILWAY.—60 FT. STEEL CAR BUILT AT THE SHEK-WAI-TONG SHOP



CANTON-HANKOW RAILWAY.—END VIEW  
OF STEEL CAR

the profound ignorance of the workmen, most of them never even having heard of a railway much less seen one, but with the blandlike simplicity of the Chinese there was no trouble in finding would be contractors who would undertake any kind of a contract for any price and agree to complete it in any time required. Experience taught the engineers that the Chinese were able to contract for earth embankments and shallow cuts, while all other work was more economically performed by using foreign foremen or letting the work to foreign contractors. At best it was slow and costly as all the workmen had to be first taught, and there were no experienced foremen or reliable foreign contractors available. The building of this line was not only a school to the Chinese employed, but it taught the engineers in charge how to take advantage of the peculiar conditions in China. That this schooling was valuable was clearly proven by the greatly reduced cost of the work performed on the main line after the completion of the branch.

As an illustration of the difficulties encountered on account of the ignorance and super-



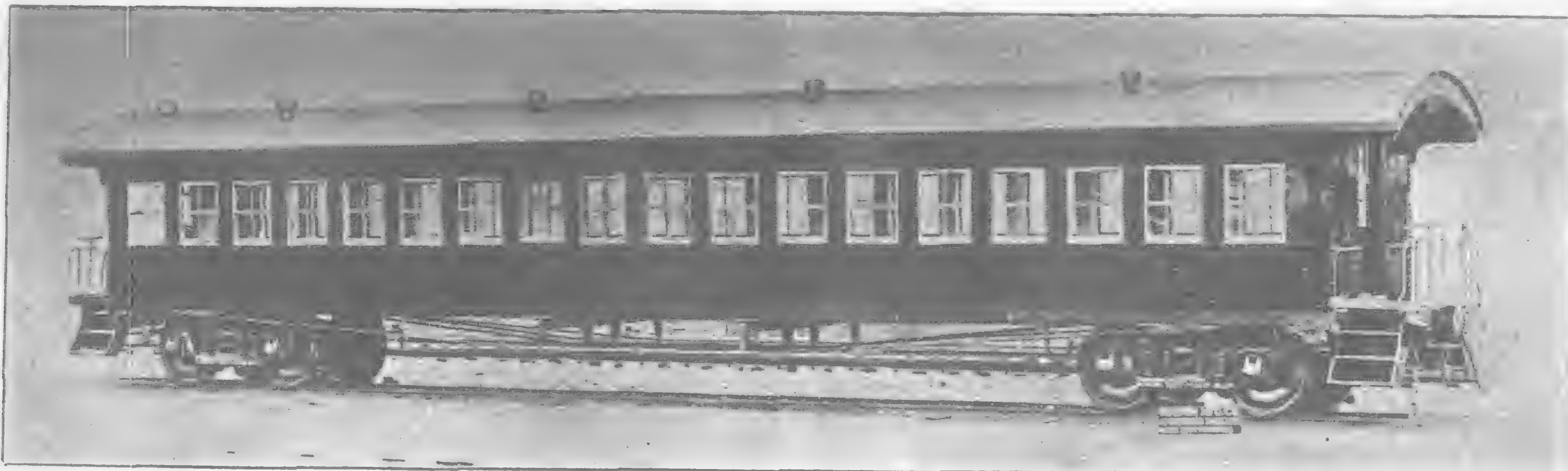
INTERIOR OF FIRST CLASS COACH, CANTON  
HANKOW RAILWAY



CANTON-HANKOW RAILWAY.—60 FT. STEEL CAR BUILT AT THE SHEK-WAI-TONG SHOP

stitutions of the people, when the line was permanently located to Sam Shui a strong and vigorous protest was entered by the inhabitants of a little village called Too Yuen Kong on account of a 15-ft. cut through a small hill. In this protest the people said that a tiger lived in that hill and it was the guardian of the village; that, if the railway cut through it, the tiger





would escape and go to the mountains and the village would go to the eternal howlows, the people would die, the cocks would not crow, and the dogs would cease to speak. The engineers met the chief men of the village on the ground and discussed the matter, but could bring no arguments to bear to get their consent to the location of the line, and the result was that the location was changed at this point.

**METHODS AND COST OF CONSTRUCTION.**—(Prices in Mexican Currency). Many unique methods of construction were used, some original and others older than the hills to the Chinese, although new to foreigners. In the construction of embankments the Chinese were fairly adept for the reason that they had been constructing dykes for hundreds of years. They entirely ignored the use of wheelbarrows or all other methods of transportation except baskets. They were finally broken in to use wheelbarrows and small cars carrying about 1 cub. yd. For the transportation of materials less than 100-ft., baskets were found to be more economical, while for moderately short hauls the wheelbarrow proved the best. The cars were used in long hauls of 1000 to 2000 ft., and at a distance of 2000 ft., ordinarily soft-cut material could be picked, shoveled into the cars and delivered into an embankment 2000 ft. away for from 20 to 25 cts., Mexican, per yd. Cost of overhaul by cars was about  $\frac{1}{2}$  c. per cub. yd. per 100-ft., while overhaul by basket or wheelbarrow was from 1 to 2 cts. per yd. The cost of embankments to a height of 4 or 5 ft., through rice fields, was from 10 to 12 cts. per cub. yd., the cost increasing as to height of embankment, coming up to 18 or 20 cts. in some of the highest. These prices obtained on the main line after the completion of the branch. The cost of rock excavation run from 60 cts. on the softer sandstones to \$1.40 on hard trap per cub. yd.

Piles cost from 25 to 35 cts. per lin. ft. according as they were 25 or 50 ft. long. The piles used were Chinese pine brought many hundreds of ms from the headwaters of the North and West Rivers. This wood is very poor—some-

thing like basswood—but is the best available and answers fairly well for pile foundations, but great care has to be used in driving to avoid breaking. A diameter of from 14 to 16 ins. at the butt is about the extreme size that is obtainable. The driving cost about \$2 each. At the larger bridges steam drivers were used and at the smaller ones hand drivers. The hand drivers were handmade and operated with a whim. One of the drivers was fitted with a treadmill arrangement for raising the hammer, and it was found that the same number of coolies would drive twice as many piles by this method in a day as by hand, and this manner of working appealed to them more strongly than raising the hammer by turning a crank.

Concrete for bridge foundation was composed of 1 part cement, 3 parts sand, and 5 parts broken stone. This cost in place from \$10 to \$14 per cub. yd., exclusive of cost of cofferdams when used, which added from \$1 to \$2 per cub. yd. The cement used was the "Green Island" brand which is one of the best cements in the Orient and very satisfactory to use on account of its uniformity. Sand of a most excellent quality was found in the immediate neighborhood while the broken stone came from the North River and cost about \$2 per cub. yd.

Oregon Pine was used for forms, false work, etc., and cost in Canton \$70 per 1000 ft.

**ROLLING STOCK.**—The rolling stock is all of American make. Eight second-hand locomotives of the Manhattan Elevated Railroad were bought for \$3000 gold each, and sent out for temporary and construction purposes. The standard locomotives weigh about 80 tons complete and were built by the Pittsburg Locomotive Works. Twenty 40-ton flatcars were sent out before the branch was completed and it was necessary to transform these into temporary passenger coaches. This was done by the use of rough Oregon Pine, boarding them up half way, putting on a roof covered with "P. & B." roofing, and furnished with four long benches running lengthwise of the coach. The first class coaches were the same except the benches

were either covered with Canton matting or replaced with bamboo chairs and had Canton matting on the floors.

The next step was the conversion of boxcars into passenger coaches, which was performed by putting in benches and cutting two small windows on either side. After a few months first, second and third-class coaches were sent out, also baggage cars. (Since then several locomotives from the Baldwin and American Locomotive Co. have been added, and new cars purchased from the Wason Mfg. Co.)

This branch commenced to pay after the first month that it was put in operation. The increase in volume of passenger traffic was steady for 15 mos., when very nearly the maximum was reached. The receipts of this line average from \$50,000 to \$60,000 per mo., and the operating expenses are about 25 per cent. This makes a very creditable showing for Mr. Lind, the efficient traffic manager. An express freight has been established which is growing in popularity, and which is sure eventually to get all traffic in valuable cargo, such as specie, silks, tea, etc. It will be sometime, if ever, before this line will do a large freight business for waterways are everywhere and afford a cheap, if slow, means of transportation, and time is no object to the average Chinaman in his common everyday affairs.

**THE MAIN LINE.**—Construction was begun on the main line in January, 1904, and entirely suspended in October of the same year. During this time 12 ms. were practically completed from Canton to Ko Tong, with the exception of laying the rails over the last 6 ms. This work was not prosecuted vigorously as the money of the company began to get short and only a limited amount could be expended monthly. It was very unfortunate that these 12 ms. could not have been finished and put into operation, as they would have added very materially to the receipts of the company. On these 12 ms. there was one thorough cut which was about  $\frac{1}{2}$  of a m. in length and at the summit 50 ft. deep, and contained 112,000 cub. yds. of material. A small industrial railway was used to haul the material in this cut to make the





embankments on either end. The extreme haul was 3000 ft. and the cost was 25c. a yd. The bridges on this section were all small and single spans. At Ko Tong 15 6-ft. spans were to be put in. The foundations had not been built at the time of the closing down of the work but the spans were made and in the yard of the Wong Sha, or Canton terminal.

**ENGINEERING LESSONS.**—A summarization of the lessons this railway construction teaches to foreign engineers, and others undertaking construction work in China, is embodied in one axiom,—treat the Chinese fair and be patient. There is no man living who will do as much work, do it as cheerfully and for as little money as a

The history of this concession is an old story. Belgian interests representing French and Russian capital, persistently obstructed American negotiations for the concession, and when the latter secured the final agreement providing for a loan of \$40,000,000 instead of half that amount as originally outlined, the European combination set to work to undermine American preponderance by purchasing shares in the open market. By the death of Senator Brice the American syndicate lost the one man whose influence would have pulled the enterprise through to a successful termination, and it would appear that his associates lost heart in the scheme. The Belgian agents were

of delay followed. Work was stopped and the Chinese chafed under the inaction.

Sheng Kung Pao dispatched his Foreign Secretary, Mr. J. C. Fergusson, to America to investigate the situation and ascertain the cause of delays. His report stated that Gen. Whittier as President of the Company assured him that work would be resumed at both ends of the line as soon as materials and tools could be shipped to China. Gen. Whittier declared that the concession had never been sold, and would not be, and the stock books showed that of 6000 outstanding shares, 3200 were owned by American citizens, members of the original syndicate; 1,004 by a French Banking house,



CANTON-HANKOW RAILWAY.—THE SHEK-WAI TONG YARD AND EXTERIOR OF MACHINE AND CARPENTER SHOP

Chinaman if he is treated right and handled properly. He has disagreeable attributes to be sure, but his good qualities more than offset them. It must be understood that he is of necessity almost entirely ignorant of modern methods of doing things, but he is very imitative and learns easily. When the Canton-Samshui division was put in operation all the locomotive drivers were foreigners with Chinese firemen. Within 1 yr. from the date of opening all the foreigners had been replaced by the native firemen and only one foreign expert driver

scouring the New York market for shares and when they had control of the situation, Mr. Parsons, who had succeeded Senator Brice, was superseded as President of the American Company by General Whittier, the agent of the Belgian syndicate in New York, and the China manager and the American engineers were recalled and replaced by Belgians. China, however, protested against the situation, and refused to officially recognize Belgian preponderance, claiming that the spirit of the concession had been violated by control of the

and the balance 1,796 by Belgians. As a result of further delays in resuming work, Sheng insisted on the cancellation of the concession.

After lengthy negotiations the Americans finally consented to forego their rights in payment of \$6,750,000 gold. This represented an expenditure of \$3,000,000 for the 30 mile Samshui Branch, and about 50 miles of completed earthwork on the main line, and \$3,750,000 as compensatory damages for the loss of valuable rights. This figure has been commented on as unduly excessive. Americans



IMPERIAL CHINESE RAILWAYS.—CANTON HANKOW LINE. STANDARD THIRD CLASS STATION BUILT BY CHINESE. STATION BUILT BY THE AM. CHINA DEVELOPMENT CO.

retained to have general supervision over the rolling stock and teach new men. The same thing was done in handling the steam pile drivers. At first the crew was made up of foreigners who were soon replaced with Chinese. This applied through all the work, and when construction was suspended there was very little need of skilled foreign foremen, as Chinese skilled workmen had been developed in all lines

American-China Development Co. passing into their hands. Through the efforts of J. P. Morgan & Co. the control of the Company was again secured for American interests, but China had set her heart on cancelling the concession and building the line herself.

The American Government also assured China that the American character of the company would be maintained, but several months

maintain that the influences working against them in China, and the Chinese desire to get rid of foreigners and build the road with their own money, was so strong that any attempt on their part to insist on retaining the concession would have been viewed as a desire to obtain political advantages. It takes time to reorganize a new railway staff, float bonds, and secure funds for the purchase of materials, and



the work would have been pushed ahead in due time. Chinese opinion had been turned against Americans by a very carefully planned campaign and there was no use fighting it, especially as all papers published in China were under foreign influence and secretly opposed to America's entrance in the field. The entrance of J. P. Morgan & Co. into the syndicate was sufficient to guarantee the carrying out of the programme, but at the outset, it was seen that this made no difference to China, who was determined to force through a cancellation of the concession, as a sop to the new national spirit engendered by the Japanese successes of the war with Russia. The Belgians during their brief control openly attacked the work of the American engineers, and described the survey of Mr. Parsons as useless. As they were in high favor with Sheng Kung-pao owing to the harmonious relations prevailing during the construction of the Peking-Hankow Line, their stories helped to decide the point. Sheng Kung-pao in listening to these Belgian yarns apparently

There was no diplomatic pressure brought to bear on Peking to retain any commercial or political advantage under the terms of the concession. The Chinese in their enthusiasm were to raise the funds at home to repurchase the rights and construct the road, and American sentiment deferred to these laudable ambitions. And from this point the second chapter in the history of the road opens. When the time came for payment, the funds were not forthcoming. Chinese patriotism did not rise to these sublime heights, and Viceroy Chang Chih-tung was at his wits' end to secure the necessary money. The British Consul at Hankow seeing the opportunity to secure for his country the rights abandoned by America, was instrumental in bringing around the negotiations leading to a loan of £1,000,000 from the Hongkong Government to pay the American release. And here America set an example to China, which has been tenaciously opposed and rejected by European Powers. America permitted her interests to be purchased with the idea of assisting

tion amounting to Taels 1,250,000. Rails, sleepers, locomotives, cars, machinery and supplies purchased to the value of Taels 900,000. Most of the sleepers are from Tasmania. Rails were ordered from America, England and the Hanyang Iron & Steel Works. Ten passenger cars and 50 construction cars were purchased from the Wason Co. of America, and engines from the American Locomotive Co. At about the end of the year there was a balance of Taels 2,620,000 in the Bank.

This British Government loan for £1,000,000 bears interest at 5% redeemable in 10 years, and secured on the opium revenues of Hupeh, Hunan and Kwangtung, the three provinces through which the future road will run. On September 9, 1905, Viceroy Chang writes to the British Consul General (Mr. Fraser) at Hankow, as follows:

"In view of your services in obtaining for me a loan through the Hongkong Government of £1,000,000 on very fair terms, wherewith to redeem the Canton-Hankow Railway, I give



IMPERIAL CHINESE RAILWAYS.—CANTON-HANKOW LINE. ENGINE NO. 21. BUILT BY THE AMERICAN LOCOMOTIVE COMPANY

forgot that Belgian surveys and estimates were not always of a high order, as the Belgian surveys of the Peking-Hankow line were never delivered to him, until after he had presented them with a copy of the American survey and estimate of the line, prepared by Captain Rich. For weeks he had requested them to submit their surveys and estimates, and for weeks they requested that he first hand over to them Capt. Rich's reports. After several weeks of sparring to cross-purposes, the Chinese holding out for the Belgian estimate, and the latter refusing until the American one was delivered to them, Sheng turned over Capt. Rich's estimates and surveys, and within a week the Belgian final official report was filed, strangely coinciding with the American figures.

In giving up the concession for a financial consideration, the American syndicate acted according to the best traditions of their country towards China. As a purely business proposition the concession, if carried through, was worth so much to the syndicate. If China was willing to pay a fair figure to redeem these rights, and build the road with her own funds, the American syndicate was entitled to a fair compensation for the loss of future profits.

China towards control of her own railways, but she was forced to witness her rights turned over to Great Britain and paid for with British gold. Whenever the Chinese Government has approached Russia, Japan or Germany with the idea of purchasing her lost railway rights the invariable answer has been an unusually high figure and then only on the condition that the money be raised in the country.

The Chinese have struggled for four years to build the road with capital raised in the country but with little success. A joint stock company was formed with a capital of \$40,000,000 Mexican on which calls have been made and the work carried on. H. E. Liang Chen-tung was appointed Director General of the Road under the style of the Canton-Hankow Railway Administration of three Provinces, and under his supervision some substantial progress was made, but the jealousies and discords of the shareholders, and refusal to pay up instalments when called on, led him to tender his resignation about two months ago. When he assumed charge there was 6,340,000 Taels in the treasury, paid in on the first instalment. From this sum the interest of the loan has been paid, land rights secured at the Wongsha Sta-

you a binding assurance that, should it be necessary to borrow funds abroad for the construction of the Canton-Hankow Railway, British financiers shall have the first option of undertaking the business, and, if bought abroad, British firms shall have the first option of supplying the machinery and materials."

In the same letter Viceroy Chang stated "with regard to the engineers for the construction of the Northern Section of the Canton-Hankow railway, it is declared that one half will be of the nation that lends the funds, and the other half will be Japanese."

So the Americans were tricked into selling out their rights, only to have them turned over to Great Britain, in case China could not raise the money at home.

After the redemption of the loan from the American China Development Company, the Railway was divided into three sections: the Kwangtung section, which was to be built by a Commercial Company composed of Cantonese; the Hunan section for which the Hunan gentry were to be responsible; and the Hupeh section, which was to be built by the gentry and officials of the Province. The Canton Commercial Company has been in a constant turmoil, but



during the last two years, while Sir Liang Cheng-tung was in control, considerable progress has been made in construction. Some-what over 100 miles of the line, reaching northward to the Hunan border, are now in operation. Nothing has been done in the Provinces of Hunan or Hupeh, and although many efforts have been made to raise funds, there has been no ready response from the people. The whole line is already handicapped by the yearly payments of interest and principal on the £1,100,000 borrowed from the Hongkong Government, and by the necessity of payments for interest upon the bonds amounting to gold \$2,125,000 still in the hands of the Belgian shareholders of the American China Development Company.

Finding that it was impossible to build the road with purely native capital, the Chinese Government reluctantly admitted that it must have recourse to a foreign loan, and in conformity with the promise made by Viceroy Chang to Consul General Fraser, negotiations were opened with the British & Chinese Corporation to furnish the funds. The history of these negotiations has formed a large part of events in China of the last year. At this date, with all the facts of the situation before us, it is now easy to understand some of the reasons underlying the Chinese attitude in breaking off the negotiations with the British Syndicate and turning to the Germans. The history of British Railway loans in China has been a studied reflection on the honesty and capacity of Chinese officials, and as such is deeply resented, and China has retaliated against British interests as a result. British loans, like the Peking-Newchwang Agreement, tend to complete British domination of the railway, for their own peculiar interests. Where they had full control of expenditures, the Chinese are dissatisfied with the excessive costs. The basic principle of all British Loans to China, is that China is incompetent to manage her own affairs, and China has learnt from experience that she can hope for little modification of such views. The agent of the British syndicate in Peking although one of the most experienced men in China, utterly failed to recognize the change that has come over Chinese officials as a result of the workings of British loans, and stubbornly held to the old contention that a British Chief Engineer must either control or vise all accounts and expenditures. The last loan issued to China under the joint direction of British and German Banks, had resulted in breaking this principle owing to German initiative. In the Tientsin-Pukow loan, China had complete control of the funds and expenditures, and also of the Chief Engineer. But when the time came for another purely British loan, the agent of the Corporation reverted to the old order of things, and the Chinese balked, and finally refused to have any further dealing with him or the corporation. Under these circumstances China naturally turned to those who had displayed more confidence in their honesty, and negotiations were opened with the German Syndicate. The latter taking advantage of the situation, and having set the precedent in the Pukow Agreement were ready and willing to advance the necessary loan on the same general conditions. A loan was therefore arranged between H. E. Chang Chih-tung and the Deutsche-Asiatische Bank for £3,000,000 at 5% for the construction of the Canton-Hankow Railway, on lines almost identical with the Tientsin-Pukow Agreement. This was signed on March 7th, ulto., and immediately the full significance of the move was made clear, an official protest was entered at Peking by the British Minister.

The history of these negotiations with all its detail of charges and countercharges of bad faith between the British, French and German financial groups is still fresh in the minds of the public, and are too tedious to bear repetition.

Briefly an understanding was finally arrived at in which the three groups were to participate equally in a new loan, in which was also included the construction of the Hankow-Szechuen Railway. Negotiations were proceeding favorably towards this end when another halt was called by an official protest from America, against the consummation of the deal, as under an agreement of August 1904, Price Ching gave a written promise to Minister Conger that in the event

of the flotation of foreign loan for the Hupeh section of the Szechuen Road, China would first consult America and Great Britain. Protest was also made against the clauses in the proposed Loan Agreement giving preference to British, German and French materials as being contrary to the principle of the Open Door. At the same time a powerful group of American capitalists entered the field for a participation in the loan. An official statement from Washington was published at the same time explaining America's attitude.

The following is the text of the statement which the Washington Government issued last month regarding the formation of an American syndicate to undertake investments in China:

"The Government of the United States is much gratified at the formation of a powerful and responsible American financial group to enter the important field of investment in China and is giving to the enterprise that cordial support which the Department of State stands ready to give all legitimate and beneficial American commercial and financial undertakings in foreign countries. Such undertakings are to be encouraged because of the direct benefit to American commerce and to international relations. Since the Russo-Japanese War there has been great activity in railway building in China. A number of preliminary contracts

Hupeh section of the proposed Hankow-Szechuan line. German co-operation in this enterprise was arranged as the result of the dispute regarding the rights of the British and French group, as opposed to those of the German financiers who in March last secured a preliminary contract to float a loan for the construction of the Canton-Hankow Railway.

"Although American capitalists did not, owing to financial conditions in this country, find it convenient to accept the British invitation to co-operate with the British and French groups in endeavoring to persuade China to make the foreign loan for the construction of the Hankow-Szechuan line, it is fortunate that before the negotiations were terminated, the organization of this powerful American syndicate has made it possible for China to fulfil her agreement and grant to the United States participation in this loan in accordance with the Wai Wu-pu's promise of 1904. The Chinese Government was notified of the formation of the American group prior to the recent tentative initiating of the loan contract. Although American capitalists did not take up this matter in its formative stage, it is not felt that the interested parties will contend that one of two joint concessionaries can determine the period of time within which the right of other may lapse, nor is it believed that, having been notified



VIEW OF TRACKS ON CANTON-HANKOW RAILWAY FROM FATSHAN STATION

were negotiated prior to the Boxer trouble and now have been reaffirmed in final form and the work of construction commenced. Not only has China granted to the British, French and German financial interests concessions to build railway lines, but the Government has already borrowed abroad to purchase the line now running between Peking and Hankow, from the financiers with whom the railway was jointly operated. In 1904 the American Minister at Peking, on behalf of American capitalists who desired a concession to construct the Hankow-Szechuen railway, approached the Chinese Foreign Office. In reply he received the assurance that if China could not herself furnish the funds, American and British capitalists would be notified and be given the prior right to supply the sum needed. In 1905 the American Government was twice approached by the British Ambassador, who stated that British capitalists desired to open negotiations for funds to construct the railway. No American capitalists happened to find it convenient at that time to co-operate with the British interests in their preliminary negotiations and the British Ambassador was so informed. On 2nd October, 1905, French and British financial groups signed an agreement to co-operate in securing various loans in China. In this agreement provision was made for American participation and a period of twelve months from the date of signature named as the time within which American capitalists might notify the British and French groups of their desire to share in their activities. The preliminary contract which was initiated at Peking on the 6th June provides that the British, French and German groups shall furnish China with funds to construct the Canton-Hankow line and the

of the readiness of American capitalists to participate in this loan, the Chinese Government would attempt to avoid fulfilling its clear obligation to the United States. The Department is following the situation with great interest and looks forward with confidence to a satisfactory arrangement between the American group and the German, British and French financiers."

Although the loan agreement has not yet been signed it is understood that the total is fixed at £6,000,000 to be equally divided between the German, English, French and American banking groups.

The terms are the same as have been insisted upon by Chang Chih Tung from the beginning of the negotiations, the provisions for expenditure and auditing being along the same lines as the Tientsin-Pukow agreement. The Chinese recently stated that it may be noted in this connection that the recent dismissal of officials of the Tientsin-Pukow railway was based on acts in no way reflecting upon the regulations for management of the finances of that railway.

On the Hankow-Canton line, English and French engineers are to be employed; on the Hankow-Szechuen line German and American engineers. In the purchase of materials for both lines, China is to have the benefit of competition between the manufacturers of all four countries upon such materials as cannot be purchased in China.

It is understood that the price to China will be 95. The arrangement is the best yet made for China, as she has the prospect ahead of securing real competition on the part of foreign manufacturers, untrammelled by biased specifications or partially of prejudiced engineers.



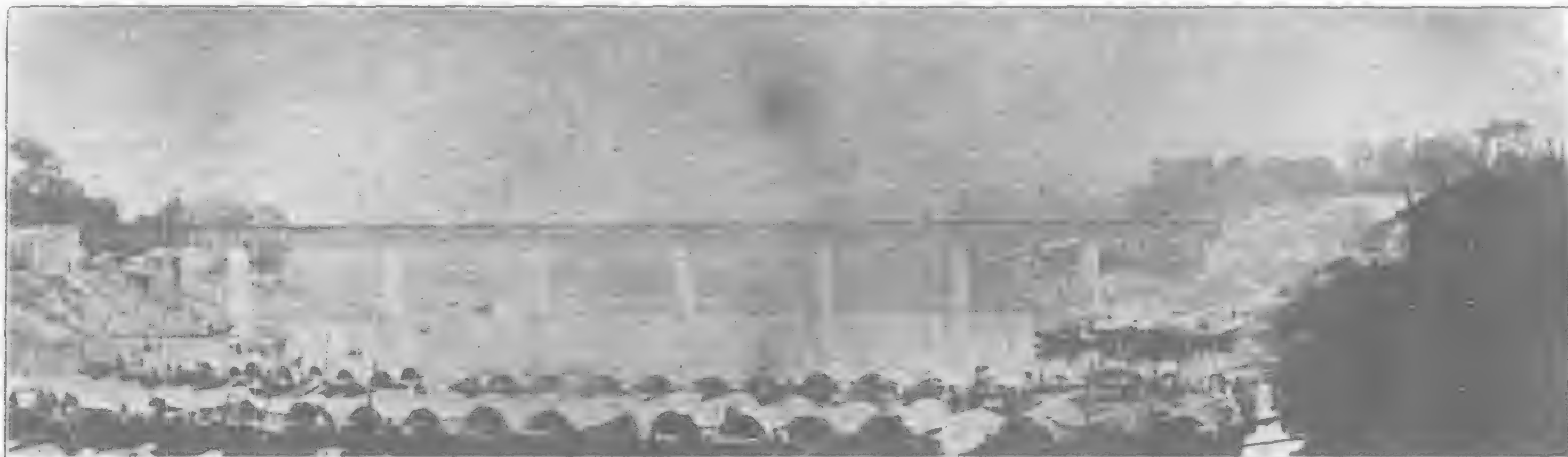
# CHUCHOW-PINGHSIANG RAILWAY

This line was originally surveyed by the party under the American Engineer, Wm. Barclay Parsons, in 1898, at the time the reconnaissance was made for the Canton-Hankow Railway. Although this proposed branch was not included in the terms of the original agreement with the American-China Development Co., the right to take it over and operate it in conjunction with the main line was sub-

supervision, with Chinese funds, but with foreign engineers employed by Sheng Kung Pao. The nearest comparison to this line is the somewhat similar undertaking of the British Peking Syndicate railway, built with purely British funds, under British supervision and the use of British products, having the same objective—the transportation of coal from the mines to a navigable river. This 90-mile standard gauge

between the two early morning trains from An-yuen, find themselves rushed.

The Railroad crosses the Li-ling river on a good wooden bridge, brick piers, just a short distance west of the station, and several smaller stations are passed ere the terminus, and large station of Chu-cheo is reached. This place is situated on the Siang River, is 20 miles above Siang-tan, and 90 li, or 30 miles due west of Li-



PINGHSIANG RAILWAY.—EIGHT 60 FT. SPAN PLATE GIRDER BRIDGE OVER THE LU KIANG NEAR LILING CITY

sequently conceded by Sheng Kung Pao. Work had already been commenced on the road in 1899, under Chinese initiative to facilitate the transport of coal from the An-yuen Mines at Ping-hsiang to Chuchow for shipment to the Steel Works at Hankow. Capt. Rich, the American Engineer who originally surveyed the Peking-Hankow Line, was engaged by Sheng to superintend construction, and another American, Mr. McCalla, completed the work as Chief Engineer. Several American engineers were also employed in the work, and H. E. Taotai K. S. Low then railway engineer under Sheng also took a leading part in construction, specially in the bridge work. The cofferdam for the piers of the Liling Bridge were several

line, cost to construct £614,600 or a little under £7000 per mile, or allowing for certain contingencies the same as the Chinese built Ping-hsiang line. The result is an object lesson of the capacity of the Chinese to handle their own funds. Admitting the truth of the basic principle of all British railway loans and allowing for a high percentage of "official commission" to the Chinese it is clear that under these conditions China can build her roads at less cost than when the same work is done by foreigners.

A correspondent of the "Celestial Empire" writing from Changsha on Aug. 5th last, gives us the latest accurate information about this line.

ling Hsien. The Railroad is thus seen to be only 195 li long, or a little less than 70 miles, and runs due east and west. Its main business is the transportation of coal and coke, passengers coming in merely as an accommodation. Three classes of this latter are offered, and the rates are very reasonable; First Class is \$1.44; Second \$1.08; Third, 72 c. and of course the larger percentage of tickets are sold for the latter class.

## THE AN-YUEN MINES

An-yuen, or Peaceful Spring (or Fountain) is the name given to the immense mines developed among these low-lying hills just to the



PINGHSIANG RAILWAY.—WOODEN TRUSS BRIDGE NEAR PINGHSIANG CITY

times carried away, while under foreign supervision, and the case looked hopeless until Engineer Low assumed charge. By working night and day for four days the concrete foundations were put in, just in time to prevent a repetition of former disasters by the freshets. The first equipment of the road was American. Under German supervision of the mines these materials have since been largely superseded by German products. The line is standard gauge, well ballasted, but with soft wood sleepers. Including the rolling stock, bridges, terminals, stations, etc., the entire cost of the 70 miles of line was approximately Taels 3,600,000 or roughly \$36,000 (£7200) per mile. It is interesting to keep this cost in mind, as the road was constructed under purely Chinese

"Starting from the immense coal districts, 15 li (5 miles) east of P'inghsiang Hsien, in western Kiangsi, the line follows a very easy grade to a point under the south wall of the last mentioned city. Here a substantial brick depot was built, and the line proceeds almost due west to Lao Kuan (Old Customs Barrier), a few hundred feet beyond which it pierces the good stone wall forming the Hunan-Kiangsi border. From P'ing-hsiang to Li-ling, the first large station in Hunan is 90 li (30 miles), and the road does not enter the city, but skirts it about one mile to the north. A fairly good Chinese road connects with the city, but is troublesome, in that the Li-ling river has to be crossed, by native ferry, en route, and passengers who try to visit Li-ling in the hour allowed

east of P'ing-hsiang Hsien, Kiangsi. The name does not appear on the ordinary Chinese maps, and is likely of recent origin. The town is situated at the headquarters of the Siang-tong (Li-ling) River, all the water on the other or eastern slopes, of the hills, flowing east into the Yuen-cheo Fu (Kiangsi) River, and thence to the Po-yang Lake. Thus an easy gradient is had from end to end of the line, and it is noticeable that no deep cuts have had to be made the entire distance. The Railroad in fact follows the ancient, and formerly much used, Great Barrow Road from Siang-tan and Changsha, in Hunan, to Yuen-cheo Fu, Lin-kiang, and Nan-ch'ang Fu, in Kiangsi. Great quantities of the small Mandarin oranges are grown on the P'ing-hsiang plains. The very name



of the town indicates the nature of the country. Much grass-cloth is produced in the district north and north-east of P'ing-hsiang, this being well-known in the two Provinces as Wan-tsai "hsia-pu."

The Mines being the all-important industry of An-yuen, and the one reason for the existence of the Railroad; we will begin here to describe some of the noteworthy things that strike the visitor. Having heard that there had sprung up quite a Chinese town here, with also a well laid out foreign settlement, and many foreigners housed in comfortable foreign houses, and that

the more commercial Germans have reduced this down so much that there is said now to be no cessation of work.

**COAL AND COKE.**—The three great mines of An-yuen thus work night and day, sending out a continuous stream of coal, which is transported, for the greater part, to Hankow and Wuchang. Some of it even now finds its way to Japan. The coke is burnt on the spot, in the great furnaces erected for this fast growing industry, and the output has been lately much increased. The largest of three coal mines is a vertical shaft, opened up on three levels below,

the purpose, (and made to dump the whole load easily), and off the train whisks for Chu-cheo.

**A GERMAN SETTLEMENT.**—The mines are at present operated by, and in charge of a colony of 24 Germans, among whom are 5 married couples, with 4 or 5 children. These all live in the various houses noted above, and, while it is not very high here, they remain throughout the summer months. Mr. Leimung is Engineer in Chief, and a Prof. Schmidt has charge of the College of Engineering, Mining, Language, etc., while at least two doctors are on the spot, Drs. Schmidt and Zimmermann. In the school



PINGHSIANG RAILWAY.—WOODEN BRIDGE AT NGAN CHOW ISLAND

great shops had been built, in which, it was averred, anything from a pin to a locomotive could be turned out, one was in a measure prepared for the many surprises of a personal visit.

Stepping from the train, one seems all at once to have arrived at a miniature Pittsburg. Tall, well built chimneys, clouds of smoke, the roar of furnaces and machinery, the rumble of trains or coal cars being pushed in all directions by blackened images called "men," and then the beautiful sight of the various houses, club, administration buildings, offices, etc., neatly

and the total output of coal and coke at present is about 1400 tons, with capacity for at least one third more. The other mines are opened horizontally into the sides of the mountains. The whole district, for a distance of some 10 li, is said either to be owned by the Company, or that they effectually forbid other mining operations, under the contention that their own business might suffer. From 300 to 375 tons of coal and coke is sent down to Chu-cheo by each train, and from 4 to 6 trains are run each way, daily. These run at only about 20 miles per hour, so that the time, including stops, is

likely young men are trained for the many branches that require more skilled labour. The railroad engineers, conductors, etc., are all Chinese, and there is no foreigner at Chu-cheo except Capt. Nielson, who has charge of the Transport Department, engaging some 40 Chinese clerks and all housed in a large, two-storied foreign building near the R. R. terminus. Here are located the large coal and coke yards, and much of this is now loaded directly from the trains into the large lighters towed down by the recently acquired German steamer Mei-yu, of Yangtsi R. service. For the Com



PINGHSIANG RAILWAY.—30 FOOT PLATE GIRDER BRIDGE ACROSS THE SHA-HO NEAR LILING CITY

placed on hill-side or top, or adjacent to the great shaft from whence issues the black stream of precious coal.

To the left, or north of the mines and foreign dwellings, etc., is situated the native town which has grown up, and here can be found a full 10,000 men, from the three provinces of Hupeh, Hunan and Kiangsi, with the latter naturally predominating. These are the miners and workmen who are worked in two shifts, day and night. Formerly a holiday was given twice per month, on the 1st and 15th of the Chinese moon, but the demands for coal, and

about four hours. The proportion of coke and coal at the present seems to be about two tons of coal sent down, to one ton of coke. This coke is made from the coal screenings, or the fine coal, and the most of that seen appeared to be under the average for size, and 2 and 1/2 tons of coal are required to produce one of coke. This is burnt, in tightly closed parallel furnaces or ovens, for a considerable period, then is forced out on to a wide berth alongside the Railroad track, water is freely thrown on it from a hose, to cool it, and it is at once loaded into very high, steel built cars, expressly made for

pany's convenience the Customs have opened a special Office adjacent to the Transportation Building, placing Mr. H. Wyatt in charge. The P'inghsiang coal sells at from 4 to 6 Taels per ton, and the coke brings 10 and 11, and is now being sold at Changsha.

The Hankow-Peking Railroad, if ever built is destined to pass through the small town of Chu-cheo, and then easier connection can be made for the mines; at present launches run each morning from Changsha and Siangtan and about two days is required for the round trip, with one night over at the mines.



# IMPERIAL PEKING-KALGAN RAILWAY

In the late seventies, a band of Chinese students were sent to America to be educated. Before their studies were completed they were recalled by the Chinese government, as it was thought they were imbibing ideas prejudicial to the old established order of things in their native land. Some had already graduated and

up hill fight for recognition. From insignificant clerkships and minor official positions, many of these youths have gradually risen, through sheer pluck and superior intelligence, to the most important offices of the Empire. Tang-Shao-yi, the distinguished diplomat, Liang Tung-yen, the Minister of Foreign Affairs, Liang

to the top. And among this group of students who went to Yale, was one Chan tien-yu. Chan had a mechanical turn of mind, and while his comrades went in for law and general studies, he selected civil engineering as his special hobby. This was an extraordinary thing for a Chinese youth to do thirty years ago, but Chan seemed



were pursuing post graduate courses, but the majority were cut off just at a time when they would have passed their final examinations, had they been permitted to continue. On their return to China, instead of receiving marks of distinction, they were ignored, and treated as traitors. Those whose families were well to do, fared well, but the lot of the others was a hard

Ju-hao, the Manchurian Councillor, Chung Mun-yew, the transportation director, Sin Liang Chentung, another diplomat, Chow Chang Ling, a Railway Director, Low Kou Shiu, the Railway Expert, Kwong, the engineer, Tong, the telegraph manager, Kwang the navy yard Director, and many others make up the list of those who have struggled from the bottom

to divine the future and plugged ahead, with tripods and wheels and finally mastered his subject and graduated as a Civil Engineer. His school boy friends did not like his name Chan, and they dubbed him "Jimmy" which is the sound of his name in the Peking dialect, and through his school days he was familiarly known to all under this sobriquet, and his com-



panions from China followed the lead of the American boys and Chan became Jimmy, and Jeme it remains to this day. After graduating from Yale, Chan went to England and matured his engineering education, and was finally elected some years ago a member of the Institute of Civil Engineers. On returning to China, he looked around for a position, and was given employment by Mr. Kinder on the I.R.N.C. as Assistant Engineer. The foreigners made Chan work hard and tried to rub it in that he

There is a reason for his success. China's honor and the capacity and honesty of her sons were at stake on this undertaking, and everybody pulled together to show the foreigner what China could really do when free from outside interference. Do the critics give him any praise for the work? Not yet. They are waiting for a tunnel to cave in, or a train to fall down an embankment to be able to say, I told you so! When the first section was completed, Jeme made a speech at the opening ceremonies, in the pres-

The limited number of qualified Chinese engineers is, of course, at present a serious drawback, but with the increased number of students who are being trained both at home and abroad, the time is not far when much of the engineering work, which is being undertaken and which will be undertaken, will rightly and properly fall into Chinese hands.

The Peking-Kalgan Line begins at Liutsun, about two miles east of Fengtai, on the Peking-Tientsin Railway, and ends at Kalgan,



THE ENGINEERS WHO BUILT THE KALGAN RAILWAY

H. E. JEME TIEN-YU, DIRECTOR AND CHIEF ENGINEER, IN THE CENTER

(From left to right, seated) YUE YA YO, TSA SUI FOO [JEME TIEN YU, NEE TSE YUE, CHENG YING TUNG. (Standing on right) CHE CHIH-YUEN. (Standing on left) CHUA CHIH-HAO

could never be a real engineer, despite his degree. But he persevered and for many years was kept out in the field. From Assistant he was promoted to Resident Engineer of a section, and was shifted around to the various posts on the road. But despite all the knocks of his foreign companions who viewed his work with envy and jealousy, Chan succeeded in pleasing his Chief, Mr. Kinder. The wheel of fortune gradually turned for him as it had for his old schoolmates, and several years ago saw his friends high in power under Yuan Shih-kai, and his old school chums, Liang Juhao, Chow Chang-ling, Tang Shao-yi and others, directing the road of which he was only a subordinate engineer. When China decided to build the Kalgan Road, without foreign interference and under the supervision of her own engineers, there was only one logical choice for the man to direct the work, and much to the discomfiture of foreign aspirants for the position, the modest and unassuming "Jimmy" was appointed to the task. "Pooh! Pooh!" the foreign engineers cried, "this little apprentice boy of Kinder's can never do the work, there is not a Chinaman living who can push a railway up the Nankow Pass to Kalgan, with its rise of 1,800 feet in 10 miles. The scheme is almost impracticable and a most serious engineering proposition for even a successful foreign engineer to undertake, let alone an inexperienced Chinese apprentice," said the envious ones. But Chan tackled the job the critics said was impossible and to-day, after many trials and much difficult work, the road with over a mile of tunnels has been completed at a cost of under \$50,000 gold per mile, a record in mountain railway building.

Honors have been heaped on the successful engineer and while his intimates still speak of him affectionately, as plain Jim, to the world he is now His Excellency Taotai Chan-tien-yu, Consulting Engineer to the Imperial Board of Posts and Communications, and destined for much higher and better gifts from his government.

ence of several foreign engineers of neighboring railways, and ended by proposing a toast to his guests, particularly the engineers. To the utter disappointment and chagrin of all present the foreign engineers displayed a boorish contempt for etiquette and remained silent. Comment is superfluous.

I intended to write a special description of the Kalgan Railway, but this story can be told best by the Chinese themselves. Some time ago an article on the road appeared in the *World's Chinese Students' Journal* of Shanghai, which we know is authoritative, and worthy of reproduction here. We commend this story to all who are interested in Chinese Railways, as it is an explanation of the sentiment so many people conflict with anti-foreign ideas and reveals a purpose on the part of China to manage her own railway affairs in the future. It follows:

"Of all the railways in China, which have been constructed or are under construction, none has roused more interest or attracted more attention than the Peking-Kalgan Railway. Some of this interest and attention is friendly and sympathetic, but sad to relate people have been not wanting who visit the line with the sole object of 'blowing open the fur to discover the blemishes,' and others for reasons which will be patent to the reader after the perusal of this article, pass sweeping criticisms and make charges without having made careful investigation and without any knowledge of the facts. To the Chinese people generally, the railway is regarded with pride, because it is the first one constructed entirely with Chinese money and by Chinese engineers, there being not a single foreigner employed on the line in any capacity. The successful manner in which the construction work is being carried out is a striking object-lesson of what can be accomplished by our people who have received a technical training, and acts as an incentive to the other lines capitalized and managed by our own people.

and is altogether 130 miles in length. The line when completed will connect the capital of China with one of the largest cities in the province of Chihli.

To our own people Kalgan, which is Mongolian and signifies a barrier or gatebeam, is better known under the name of Chang-chiakou, and is generally associated in their minds with disgraced officials, who sometimes have been compelled to make their temporary residence there by command of the Emperor. The city lies almost due northwest of Peking in the line of the Outer Great Wall, commanding one of the most important passes between China proper and Mongolia, and also the main road of the overland route between China and Russia. Its geographical position is given as in 40° 50' N. lat and 114° 54' E. long., and its altitude as 2,810 feet. Like all Chinese towns in the north, the streets are very wide, to allow the passage of numerous mule carts, but Kalgan can also boast of many excellent shops, which bear testimony to its prosperity. Though its population is estimated at only a hundred thousand, the town is important in that it is the seat of an extensive transit trade. Nearly all the tea that is sent to Russia by the overland route goes through this town, and it is a very common sight in the early part of autumn for long lines of camels to arrive from all quarters for the conveyance of tea-chests from the town to Kiakhta. It is estimated that the present traffic between the frontier and China proper alone involves the employment of fifty thousand camels, not to mention the thousands of ponies, mules, donkeys and carts which are also engaged in this great overland trade of North China. The principal merchandise going northward consists of tea and piece goods; while that southward includes fur, hides, camel's hair, Chinese medicines, wool, fruits, etc. Large quantities of soda are manufactured in Kalgan, and when the means of transportation are improved, much of it will no doubt be exported.



Owing to its difficulty of access, Kalgan is not very well known to the world, though many Russian merchants have for years established their residences and warehouses just outside the gate. With the completion of the railway, travellers will no doubt include the town in their tour.

"From the political standpoint, the railway is very important to our Empire, for it will

from all appearances these reports have been disseminated at the instigation of unfriendly parties.

"Let me, however, turn aside from the exposition of such disgusting and unworthy actions, and continue with my description of the work that has been accomplished by our own engineers. The line was surveyed by the Chief Engineer, Taotai Jeme Tien-yow, Ph. B. (Yale

the two assistant engineers, and the numerous student engineers are all Chinese. In the traffic department also, all the employees, from the Traffic Manager, the station masters, down to engine-drivers and guards, are Chinese, and since the opening of the first section in October of last year to traffic, the trains have been running in clockwise schedule six times a day without a single mishap, thus proving conclusively that



PEKING-KALGAN RAILWAY.—IN THE MOUNTAINS

tremendously facilitate communication between Mongolia and China proper. The dependencies of our Empire have been one after another lopped off from their parent country, and Mongolia is one of the very few remaining. Already there are rumors of its falling into the hands of a foreign power, who has been striving with might and main to gain a secure and permanent foothold in that region, and who by wiles and stratagem has been hoping to undermine the loyalty of the tribal chieftains. The railway, which it is hoped will be ultimately extended to Urga (K'urun), and even to Kiakhta, the frontier town, will, by binding as it were the Mongolian dependency and Peking with an iron chain, strengthen beyond power of expression the bond between the two.

"Such being the commercial and political importance of the line, (which is fully realized by the high authorities in Peking, especially by H. E. Yuan Shih-k'ai), several foreign powers tried very hard to secure the concession for its construction. It was a great disappointment to them, when it was announced that the line would be built with a fund to be drawn from the annual surplus of the Imperial Railways of North China, and that the work would be entrusted to Chinese engineers. Jealousy of the accession to power and prominence of our technical men, for whom their Western fellow professionals had entertained suspicion as to their ability, and soreness over the failure on the part of foreign concessionaires to obtain the right and privilege of building the line have been so intense, that at the least rumor telegrams from engineers (foreign) of neighboring railways fly around for information with the unkind hope that the rumour may be verified. Representatives of responsible and respectable corporations have also openly published articles, in which disparaging statements are made of the railway. Many reports of accidents which never happened have appeared in papers, and

University), A.M.I.C.E. (London), an account of whom appeared in the last number of the *Journal* and his staff in the summer of 1905, and the construction began in the latter part of October of the same year. The estimated cost of the whole line is Tls. 7,286,660, which is very low indeed, considering the engineering difficulties in the Nankow Pass, and at Kimingyih, which will be described in the latter part of the article.

"As I have already intimated, there is not a single foreigner employed in any capacity: the resident engineers, of whom there are four,

our people are able not only to build a railway, but also to run it successfully. The policy of certain lines under foreign management to import and employ foreign unskilled labor, especially Indians, as guards, linemen, flagmen, etc., is certainly an indefensible one, and in thus crowding out our own countrymen from positions to which they have legitimately and naturally the first claim, will gain for themselves the odium and antagonism of all classes.

"The first of the four divisions, which has been opened to traffic, is 32 miles long, beginning at Liutsun and ending at Nankow at the mouth



PEKING-KALGAN RAILWAY.—THE GREAT WALL





PEKING KALGAN RAILWAY.—TYPES OF BRIDGES

of the Pass. The construction commenced in October, 1905, and within the short space of nine months, the construction train reached the Pass. The formal opening took place on the 30th of September, 1906, and many guests, both foreign and Chinese, proceeded to Nankow to witness the ceremonies. The late H. E. Hu Yu-fen, Vice-President of the Ministry of Posts and Communications, presided at the function, and Taotai Jeme Tien-yow made a speech in English, in which he cursorily delineated the work accomplished and gave a sketch of what remained to be done. He ended by proposing a toast to the guests, particularly to the engineers of sister railways, but to the utter astonishment and disappointment of all no one responded, though several foreign engineers were present. Many high metropolitan officials came to show their interest and pride in the line.

"Starting from Liutsun, a traveller on the Peking-Kalgan Railway would traverse through fields covered with dense growth of *kaoliang*, till his field of view suddenly expands as the massive and well-preserved walls of Peking



PERING-KALGAN RAILWAY.—CONCRETE ARCH BRIDGE ACROSS MOUNTAIN STREAM

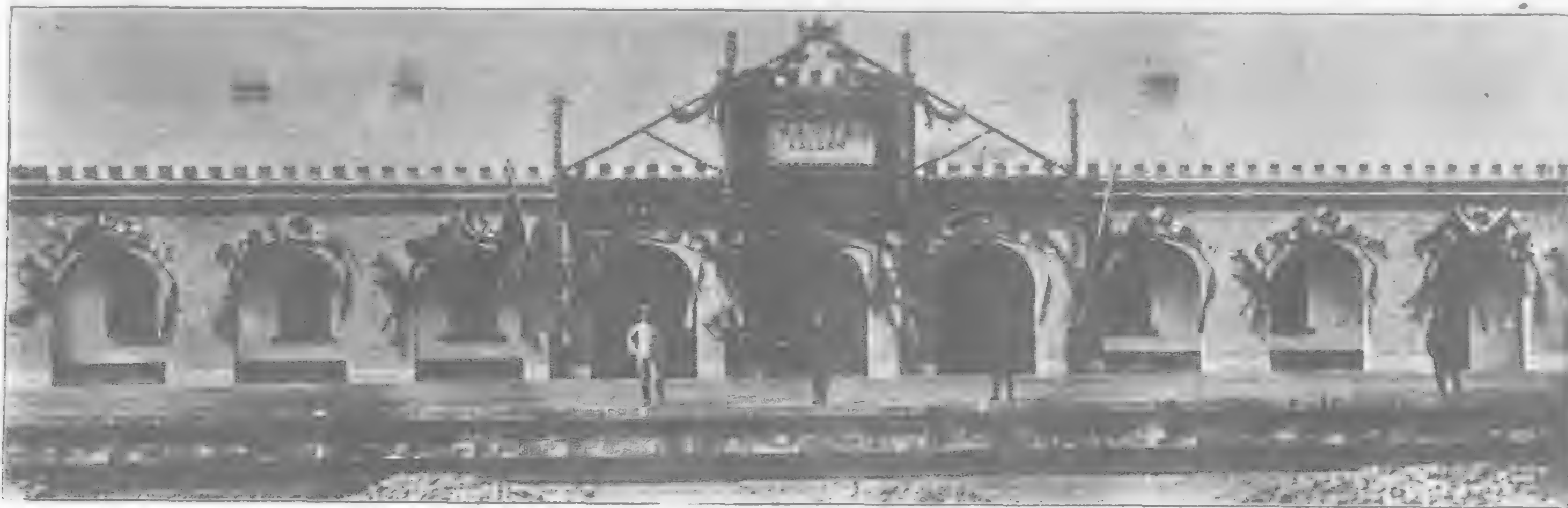


gradually come into sight. Hugging closely the city wall, the train reaches the first station, Kuanganmen, which is not an important stopping place. Still following the direction of the city wall, the train next makes a stop at Hsichihmen, one of the busiest gateways of the capital, for it is the one Their Majesties the Empress Dowager and the Emperor frequently pass through on their journey to and from Eho Park. For a large part of the year metropolitan and provincial officials may be seen in carriages or the humbler mule carts wending their way through the gate and on the

17 drains, aggregating 1,352 feet (linear) of openings. All the bridges are constructed of concrete, and it is hardly necessary to add they are all well-made and of a lasting character. In fact, it may be asserted that there is nothing of a temporary character about anything on the line. People in this world, however, very often associate exorbitant prices with good quality, and low prices with poor quality of materials and workmanship, believing in their simplicity that they are inseparable concomitants, but the attention of my readers is called to the low price paid in this division for earth-

their privilege by subletting and re-subletting their contracts, a system of 'squeezing' which has rendered engineering work so expensive in other parts of China. Nor are there interpreters of the character as has been reported elsewhere who receive Tls. 50 per mensem and retire after a year or so with half a lakh. There is not a *single* interpreter on the line, for they are not needed, and the absence of middlemen results in economy, unattainable in the nature of things where the personnel and the system are not similar.

"Along the 32 miles of this division, there are



PEKING-KALGAN RAILWAY.—STATION AT KALGAN

magnificent macadamized road leading to Eho-yuan. From Hsichihmen onward, the railway gradually strikes away from Peking and makes for the open country, where the scenery is quietly pretty. As one approaches Chingho, the next station, hills which had appeared in the dim distance on the left now come closely into view, and Wanshoushan, the summer home of Their Majesties, with its glittering towers and shining roofs, is pointed out, nestling in the valley of the nearer hills. Officials proceeding to Eho-yuan sometimes take the train as far as this station, and then proceed by sedan chairs to their destination.

"At Shaho the train crosses the principal bridge of this division,—a really magnificent structure, consisting of five spans of 30 feet each and one of 110 feet. The steel superstructure of this bridge as well as of other bridges, with the exception of the 110 feet span which was made in England, is supplied by the Shan-haikuan Bridge Works. Mr Kwong, the present chief engineer of the Canton-Hankow Railway, was in charge of this division and to him much of the credit for the splendid work in this division is due. From Shaho onward the ground begins to rise imperceptibly, and the grade gets higher and higher as the train approaches Nankow, the last station before entering the famous Pass. The line describes a tremendous curve just before reaching the station, thus enabling the traveller to sweep his eyes over the stretch of country just traversed by him. The village or town of Nankow, which is situated almost exactly at the mouth of the Pass, is separated only by about half a mile from the station, and no doubt from now on it will begin to grow towards it, as traffic increases in the near future. What with the buildings already constructed round about the station for railway employees, the sheds for locomotives, the embryo machine shop, under the charge of a competent and experienced Chinese mechanical engineer, and other buildings rapidly springing up, the place already looks quite populous and respectably busy. Speaking of the machine shop, let me add that repairs, alterations, and improvements of all kinds are made here, and it is hoped in the near future, the sphere of work will be greatly extended and facilities provided so that even cars may be constructed. At present, however, besides the services enumerated above, the machine shop is also greatly useful in making iron castings right on the spot.

Turning to the more technical side of the work accomplished in this division, I was informed that there are altogether 21 bridges and

work and materials, which has enabled the construction of a first class line at an unusually reasonable rate. For earthwork at the Liutsun end, it averages only 17 cents per fong, or, expressed in another way, 4 cents per cubic yard. At the Nankow end, where high embankments have to be made out of boulders, the average price is 27 cents per fong. Prices just as reasonable and low are charged for broken stones for concrete which varies from \$1.20 to \$2.00 per fong delivered on the spot, and sand, when collected locally, costs only the ridiculously low price of 30 cents per fong. The explanation is not far to seek, for on the Peking-Kalgan Railway, all these materials are supplied to the engineers *directly* by petty contractors and there is, therefore, no opportunity for big contractors to monopolize the tenders and abuse

3 water-tank houses, 6 foreman's quarters, 18 plate-layer's cabins, 2 engine sheds, 2 locomotive stores, 1 machine shop already referred to above, 1 turntable and 2 coaling stations. All the structures are built upon modern principles, and the architecture, a very simple but pleasing one, conforms to the adopted type of this railway. Employees are provided with comfortable quarters near the stations, for which they pay a reasonable rent, and altogether there are nine groups of these. For the engineers and the railway police, special buildings are being erected; nor are tourists forgotten, for a hotel with excellent accommodations is provided by the railway. To those of our readers unacquainted with Peking and its vicinity, I may say here that Nankow has been for years the stopping place of tourists, who desire to



PEKING-KALGAN RAILWAY.—UNDER THE GREAT WALL



visit the Inner Great Wall at the northern end of the Pass or the Ming Tombs, a trip to either of which can be comfortably made from the town in one day. Up to the present visitors have been compelled to be satisfied with the disagreeable and uncomfortable quarters of a third class Chinese inn, bringing with them their own food and drink. With the construction of the railway, not only the two days' dreary and jolting journey from Peking in a mule

however, firm believers of the old adage, 'Where there is a will, there's a way,' and so the Resident Engineer of this section was despatched there early to make an exhaustive survey, with the view of securing the best route with the lowest grades. Some idea of the pains taken and the physical and mental labor undergone can be formed by the reader when I say that no fewer than five distinct lines were surveyed, and finally the best one from every point of

view was selected. Generally speaking, the railway follows closely the great highway, which has existed for hundreds of years, but once in a while it disappears in tunnels, short ones at first, to emerge again into the open till Pataling (the highest point of the Pass, where the Great Wall is seen to its best advantage), when the last and longest tunnel is reached, and this time the track does not appear again till about a quarter of a mile beyond the Wall.



PEKING-KALGAN RAILWAY.—SHORT TUNNEL

cart, with all its attendant misery, especially in inclement weather, is done away with, but the traveller finds on his arrival at Nankow after the pleasant ride on the train all the comforts and even luxuries of a modern hotel awaiting him. Our people have not acquired the science of attracting and of catering to tourists as our neighbours the Japanese have done, but I hope the examples set by this railway will be adopted by the other lines, so as to enable travellers to see some of the historical and beautiful spots of our country instead of leaving China with the impression that all there is of her are the few treaty ports.

"As to rolling stock, the engines in use now were bought from the Imperial Railways of North China. Special engines, the Mallet Compound Articulated, have however been ordered from England, and will arrive shortly to be used for working trains for the steep grades of the Pass. Japanese sleepers are used on account of their reasonable price, but in the Nankow Pass, in view of the heavy grades, special creosoted sleepers are employed with provisions towards the prevention of creeping of the rails. The rails on the main line are 85 lbs. Sanbergs; for sidings and branch lines 60 lbs. rails are employed. The whole line is of uniform standard gauge. All freight cars, both open and covered, are of 30 ton capacity, with wheels on bogies to insure easy running on sharp curves. In accordance with the system generally adopted by railways in China, first and second class passengers travel in composite cars, and the third class cars are covered, with benches along the sides. In spite of the fact that only a fourth of the whole line has been completed, and that Nankow is an unimportant town in itself the receipts amount to \$10,000 a month.

"When the construction of the line was first proposed, many people believed that the Nankow Pass would present difficulties insuperable from the engineer's standpoint, and to those who have visited the Pass on their pilgrimage to the Great Wall the assertion did not sound unreasonable. The ground has a rise of 1,800 feet within the short distance of 10½ miles as far as Pataling, whence it goes down grade again. The narrowness of the Pass precludes the employment of curves with length of an radius. Our Chinese engineers are,



PEKING-KALGAN RAILWAY.—ENTRANCE TO PATALING TUNNEL



"In the Pass the cut and fill amount to 150,000 and 300,000 fongs respectively, the labor costing about \$450,000, or an average of \$1 per fong of cut or fill. Half the cut is through solid rock and fills are made by cutting down the hill-sides. The maximum cut is 80 feet and the highest fill is 65 feet. There are four tunnels, the lengths of which are 1,200 feet, 150 feet, 450 feet, and 3,570 feet respectively. The first one pierces the limestone region near the historical spot, Chuyungkuan, where is situated the famous white stone gateway, carved all over with figures of human beings and animals and in the archway with characters in Chinese, Mongol, etc. Here, according to the novelist, Yang Yen-chao, a famous general of the Sung dynasty was stationed, his headquarters being the White Tiger Hall.

"The driving of the tunnel occupied the space of six months, the slowness being explained by the fact that all the work was done by hand labor. The accuracy of the work was tested when the two ends met. In line, it was exact, and the length has an error of a few inches. The second and third tunnels, though driven through granite, have been finished and lined, the work having been accomplished without any difficulty whatever.

"The fourth tunnel, the longest one existing in China, occupies a romantic situation, for it runs 243 feet below the Great Wall at Pataling, the northern gateway to the Pass. Again, the engineer finds facing him granite and hardpan, which abound in this region. To quicken work, a shaft ninety feet deep was sunk about halfway so as to enable the workmen to drive from four ends instead of two. This shaft is lined with cut stone, and will be retained afterwards for the purpose of ventilation. Near the north end of the tunnel a temporary air shaft forty feet deep was driven. In the work of driving, in addition to hand labor, one set of Schram drilling machines is used, and for ventilation, a 48" Musgrave fan, bought through Messrs. John Birch and Co., London, was installed at the shaft. Chinese wind-boxes used at the two ends have been found to be very serviceable. For hoisting water, a double winding machine which works by an automatic filling water drum, is set up at the shaft, and the blasted material is lifted in special cars by means of a cage. All but 900 feet has been driven, which is marvellously quick work, considering that operations in this section did not commence till March of last year, and the whole tunnel will be ready and lined before next summer. The thoroughness of the work is evinced by the fact that all the tunnels will be lined throughout to prevent any possible accident, and for the arch, concrete blocks will be made use of. Finally, cut stone portals will add to the neatness of the tunnels.

"One can appreciate the nature of the undertaking in the Pass better, when he is informed that for five miles of the ten and a half, the grade rises at the rate of 1 in 30, that is, for every thirty linear feet traversed by the line, it rises one foot in altitude. Within the Pass, there will be 45 curves. For those of short radius, transition curves, formulas for which are being developed by the Chief Engineer, will be used. There will be also 19 bridges and 36 drains. With a few exceptions the former consist of concrete arches, the largest of which is of 40 feet span on a skew of 45 degrees and 65 feet high.

The railroad has already been extended to Chuyungkuan, and trains will travel through the Pass as soon as the Pataling tunnel is completed.

"It is not necessary to weary the reader with a lengthened account of the third and fourth divisions, on the former of which work has just commenced. Suffice it to say that the third division is 38 miles long, extending from Chatao to Kimingyih, and requires the construction of 17 bridges and 32 drains, aggregating 2662 linear feet of openings. The principal engineering feature will be the bridge at Huilaisien, which will consist of ten 100 feet deck spans. The fourth and last division begins at Kimingyih and ends at Kalgan, again a distance of 38 miles. The engineering difficulties in this division rival those of the Nankow Pass. At Hsiangshuipo, 165 chains



KALGAN RAILWAY.—TUNNEL ENTRANCE



KALGAN RAILWAY.—THE TUNNEL UNDER THE GREAT WALL



PEKING-KALGAN RAILWAY.—CUT AND FILL

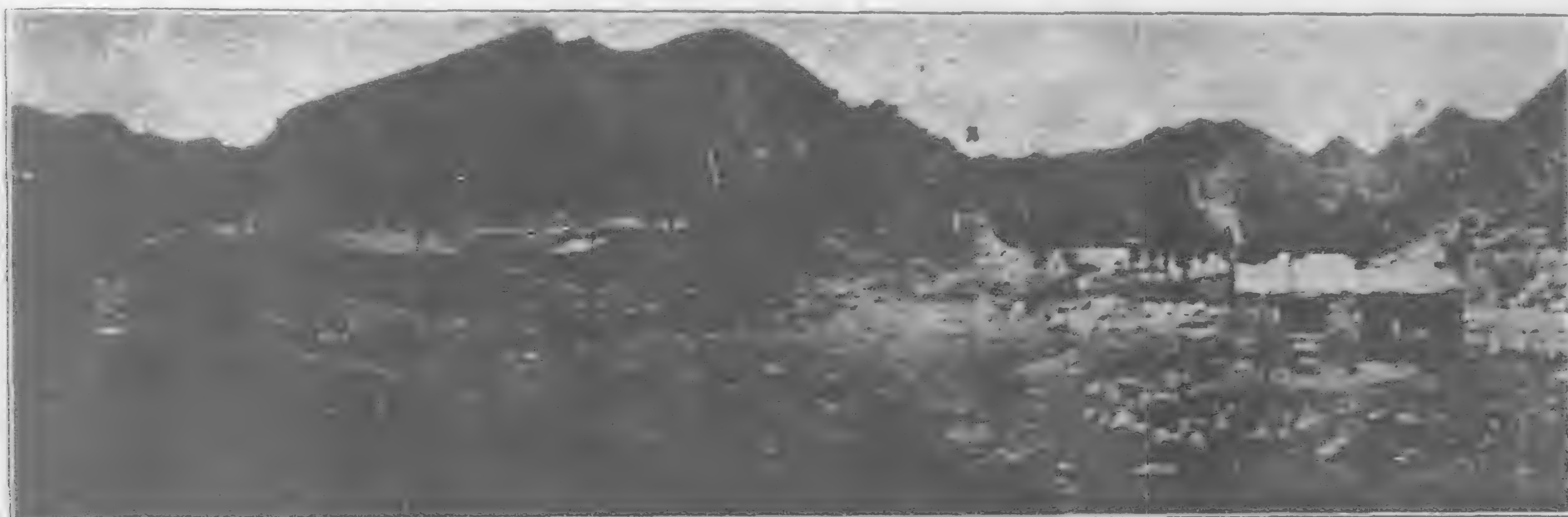
[i.e. 16,500 feet] of granite and sandstone will have to be cut through, along the edge of the steep bank of the Yangho, which is the upper course of the Yungtingho, the cut varying from ten feet to eighty-five feet deep. The openings amount to 2075 linear feet, consisting of 21 bridges and 130 drains.

"At Kimingyih, the railway is operating a coal mine bought from the country people. At present the attention of the mining engineer in charge (a Chinese who qualified for his profession in both England and America) is directed to the introduction of the latest Western improvements and the driving of new shafts and drifts. Machinery, for both winding and drilling, has been transported at tremendous labor to the

spot and installed, and it is expected that within a year coal will be forthcoming.

"The branch line to Mentoukou, a distance of 15 miles, is also under construction. The economy of the line is again demonstrated by the fact that the embankment amounting to 100,000 fongs was contracted for about 14 cents per fong. The branch line is to connect the well-known coal-fields with the capital. There is one bridge of some importance, namely, the one across the Hunho, which consists of eight 100 feet spans. The railway hopes to do a thriving business on this short line, running as many as forty 20 ton cars every day to convey the freight, which will consist of hard coal, lime and broken stones for road building.





PEKING-KALGAN RAILWAY.—HIGHEST POINT NANKOW PASS, PEKING



PEKING-KALGAN RAILWAY.—TUNNEL ENTRANCE



PEKING-KALGAN RAILWAY.—TUNNEL



I. R. N. C.—NEW STATION AT PEKING



PEKING-KALGAN RAILWAY.—TUNNEL OPENINGS



CHEKIANG RAILWAY.—THE ENGINEER'S OFFICE AT HANGCHOW, ON THE HILL. FREIGHT DEPOT TO RIGHT



CAMELS AT NANKOW PASS



"The whole line to Kalgan will be completed in 1910 or even earlier, and it is the intention of the Chief Engineer to construct the terminus at Kalgan on a grand scale.

"In concluding this brief and inadequate description of the Peking-Kalgan Railway, let me call the attention of the reader to the principal features of the line, features which render it conspicuous and distinct from the other lines in China. In the first place, there are no foreigners employed. This in itself should be and is a matter of national pride, but were our engineers unable to fulfill the demands of their profession, it would perhaps be a better arrangement to utilize foreign technical skill. In the present instance, however, there can be no question whatever that all the work of construction is carried out in good engineer like manner. The materials used are of the best quality, while the structures bear nothing of the temporary character about them. To one who has travelled on the line, it is evident that the buildings too are of first class masonry.

"The second point is the rapidity of the construction. Within the short period of nine months, and it must be remembered that in the north of China three months in winter are frozen and no concreting can be done during those months, the construction train reached Nankow, a distance of 32 miles.

"In the construction of a railway, economy, which must not be confounded with cheapness, must always be kept in view. All railways which have been built and are being built in China must be paid for by our people, and our people are poor. A railway line is not a club house or a private mansion, upon which the owner or owners may expend millions merely for the gratification of their sense of beauty or for the exhibition of their degree of wealth, but is a commercial investment. The amount of capital sunk in it must be commensurate to its power of paying dividends, and in the case of Chinese railways the redemption of the bonds must not for a moment be forgotten. Economy on the Peking-Kalgan Railway has been reduced almost to a science. There is no temptation to spend money recklessly, as no five per cent. commission on every tael spent can enrich the coffers of any corporation. There is no



PEKING-KALGAN RAILWAY.—MALLET TYPE LOCOMOTIVE FROM NORTH BRITISH LOCOMOTIVE COMPANY

the prices of materials explain in a large part why a railway built under our own supervision and by our own engineers is so very much more economical.

"Another very important advantage gained is the peaceful condition of coolies during construction, due to the absence of misunderstanding between engineers, the coolies, and the country people. No disturbance of any kind, still less of any rioting, has ever happened, and the work has proceeded so smoothly and quietly that the local officials are never called upon to suppress disorders or punish offenders. There can be no unpleasantness arising through the interference of foreign consuls and the referring

employees are rated according to their qualifications, no matter whether a man comes with a recommendation from a Prince or no, and all contracts are by competitive tenders. Indeed, spies, employed by interested or unfriendly parties, are so keenly on the watch that nothing crooked could escape their eyes and be not immediately exposed, were those in charge inclined to be crooked.

"And lastly, student engineers are much encouraged for their work, and receive considerable treatment from their teachers. Steady and conscientious application of their knowledge (nearly all of them have received theoretical training in the engineering department of Tientsin University or elsewhere) ensures rapid promotions and good salaries. Their future is assured, for the demand of Chinese engineers is far above the supply."



PEKING-KALGAN RAILWAY.—CAMELS BRINGING IN RAILWAY SUPPLIES

temptation to spend recklessly so as to necessitate the floating of another 'loan,' in which the Chinese Government receives Tls. 93, and the bondholders pay to the floaters Tls. 116. There are no engineers who must have foreign style residences, cement tennis courts, ice-making machines, palatial house-boats, and princely salaries before beginning work. There are no interpreters to browbeat the contractors, to make trouble with the local officials, and to make a pile in little or no time. All contractors deal with the engineers directly, and no squeeze system exists. The figures already given for

of insignificant incidents to the Ministers in Peking. One and all understand that the railway is a Chinese railway, that our own money is being spent, that the coolies are our own people, though they are coolies, that our officials are officials appointed by the Emperor, and the result is the work proceeds without a hitch of any kind.

"One should think that with Government patronage and official supervision, there could be no strict honesty, that graft, more or less, must penetrate the transactions. Wonderful to say, on this line nepotism is unknown all

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# TIENTSIN-PUKOW RAILWAY

## (Southern Section)

Although work on the Northern Section of this Railway has been progressing at a favorable rate, the same can hardly be said of the Southern Section. Various reasons have been advanced from time to time in explanation by both British and Chinese officials, and the idea allowed to gain ground that the work has been retarded owing to the lack of harmonious relations between the Managing Director, Taotai K. S. Low, and the British Chief Engineer, Mr. T. W. Tuckey, with the burden of censure on the former official. The representatives of the British and Chinese Corporation at Peking, and the *London Times* criticized the state of affairs, reflecting on the capacity of the Chinese Director, and comment in Shanghai and the treaty ports naturally followed this lead. It is entirely natural and perhaps justifiable for some to shift all responsibility for delays and friction on to the shoulders of the Chinese official, as the world is generally ready to accept such a view, owing to the natural leaning of the race towards obstruction and procrastination. But in this particular instance it is safe to state that the reverse is true, and such delays and discords which have arisen, are traceable directly to the fact that the foreigner has attempted to overstep the terms of the Loan Agreement, and the Chinese managing director has assumed an inflexible attitude in defending the interests confided to his charge. For once China's interests are entrusted to an official peculiarly equipped to act intelligently and safeguard her rights. In Taotai K. S. Low, China has selected the best man in the Empire for the post of managing director of a railway. Educated in America in the early eighties, he graduated as a civil engineer from the Troy Polytechnic, and since returning to his native land his services have been in constant demand for railway work. He was one of the party who made the original surveys for the Peking-Hankow and the Canton-Hankow Railways; he assisted in building the Pinghsian Colliery Road, was railway expert to Sheng Kungpao, surveyed the Kirin Railway, and was first chief engineer to the Chekiang Railway Co., where, had his advice been acted on, it would have saved the directorate much adverse criticism. With Taotai Jeme Tien yu, the builder of the Peking-Kalgan Road, Taotai Low shares the honor of being the best native engineer in China. With an enviable record for probity and capacity it was clear at the outset that such an official would hew close to the terms of the Agreement, and insist on its being carried out to the letter. Although the British and Chinese Corporation had undoubtedly constructed a thoroughly first class road in every respect from Shanghai to Nanking, the Chinese hold to the opinion that conditions did not warrant such a heavy expenditure, and in the future, instead of permitting the foreign engineer absolute control of purchases, the tendency towards extravagance would be checked by the control being placed under the Chinese managing director. It is not my purpose to enter into any discussion as to the merits of the above contention, which is simply stated as a fact, which actuated the Imperial Government, in stipulating that financial control would be in their own hands in the construction of the Tientsin-Puokw Road.

The lack of harmony or friction between the high officials of the road, advanced by British papers as an excuse for the delay, is largely attributable to the failure of the British Engineer to accept the terms of the Loan Agreement, as interpreted by the managing director. The authorities on the Northern Section had arrived at an amicable adjustment of their relations to each other, and the German chief engineer was recognized as the supreme authority, not only in the technical but accounting departments. Mr. Dorpmüller was the acknowledged head of all foreign engineers, accountants and secretaries and their contracts with the railway authorities recognized him on an equal footing with the managing director.

Herein the administration of the Northern Section practically nullified the terms of the Loan Agreement which China took such pains to conclude, not only for the protection of her own interests, but those of the other side as well. According to Article 17 of this agreement, although the services of the chief engineer are engaged for the supervision of construction, he is under the orders of the managing director, and has to carry out the wishes of the latter as to the general plan of the road. The managing director under the conditions of the Agreement is the superior and his special functions are the administration of the funds and supervision of all purely Chinese matters. If this control is shared by the chief engineer, it relegates the director to a back seat and opens the way for graft in many forms or at the least to extravagance in construction, which the Chinese government was specially desirous to obviate. As the sole responsibility for the funds is charged to the director, any participation by the engineer in their control, while disclaiming participation in responsibility, would react seriously on his official colleague, and any attempt to share such control would necessarily be resented by an official jealous of his record and reputation.

The scandals attached to the Northern Section of the road are too recent an occurrence for me to enlarge on here, but it is well to bear them in mind in arriving at a correct estimate of the situation on the Southern end.

Under the terms of the loan agreement the powers of the managing director are derived from the director general and he is held solely responsible for the funds and the accounting. As it was impossible for him to do this work himself the services of a competent foreigner was sought and at the same time the post of private secretary to the managing director was also to be filled. The latter requested the chief engineer to use his good offices and assist him in securing these men and through his influence the present accountant was brought out from India and the chief secretary from England. And from this point dates the friction between the officials. The chief engineer insisted that these men—the accountant who was to supervise the accounts for the Managing Director, and the one who was to act as his chief secretary—must sign the agreement recognizing him as equal in authority in their departments as the managing director. Taotai Low refused to accept such interference in his department and to this difference of opinion is due all subsequent friction. The attitude of the chief engineer, in plainer words, would reduce his superior to the position of an inferior and cancel his authority in his own department. Mr. Tuckey's insistence on this point naturally created an issue which had to be submitted to Peking for adjustment, and under the terms of the Loan Agreement all such questions were to be decided by the director general. The managing director transmitted his papers in due form to the recognized authority, but the chief engineer took his case over the head of the director general to the British Minister at Peking and to the representative of the British and Chinese Corporation. This breach of official etiquette, reflecting on the fairness of the director general, only helped to intensify the ill feeling on both sides. The final decision of the authorities at Peking, fully supported Taotai Low, and the attempts to shoulder on him the responsibility for lack of harmony and delay in construction is not justified by the facts, and in all fairness to a capable official such reports should be corrected. Taotai Low has conscientiously endeavored to administer his office in strict compliance with the terms of the Agreement, and while it cannot be urged that there was any ulterior motives on the part of the engineer in forcing the issue, other than a natural desire for power, his action if successful would have effectively nullified the Agreement and opened the way towards "graft" and extravagance. In view of the scandals attached to the northern section of the road

where the chief engineer shared the control of the accounts with the Director, Taotai Low's stand is worthy of the highest commendation from all parties as it effectively precludes a repetition of the graft charges at Tientsin and preserves the good name of the Chinese government and the British and Chinese Corporation from any taint of corruption, however ill founded. If scandals arise in the future there is only one responsible party and the British interests may well feel grateful to the Chinese director who has effectively insured them from any suspicion of graft by assuming all responsibility and refusing to acknowledge the pretensions of the engineer to joint control of the accounts. The road when completed may not be up to the highest British standards as typified in China by the Shanghai-Nanking line, but it will have the merit of satisfying the Chinese idea of economy which may mean more for the success of British railway principles than an abnormal temporary profit.

As far as I am able to gather from all reliable sources, the persistent criticisms directed against Taotai Low arise from his uncompromising attitude in rigidly enforcing the stipulations of the Loan Agreement without regard for favored parties, thus fully protecting himself from any taint or suspicion of scandal. His most bitter critics, those who have been unsuccessful in securing contracts, all concede his probity and honesty. The full text of Article 18 of the T. P. R. Loan Agreement reads as follows:

"For the Northern and Southern Sections of the Railway, respectively, the Deutsch-Asiatische Bank and the Chinese Central Railways Limited will act as agents of the Railway Administration during construction for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials tenders shall be called for by the managing director; in the case of all tenders, indents and orders for the importation of goods and materials from abroad, the said agents shall purchase the materials required on the terms most advantageous to the railway and shall charge the original net cost of the same plus a commission of five (5) per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the managing director.

"In return for payment of commission as above stated, the Deutsch-Asiatische Bank and Chinese Central Railways Limited as agents within their respective sections shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality, and that the railway administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the Northern and Southern sections respectively. The railway administration reserves the right, while paying the above stipulated commission to the said agents in respect of all purchases of foreign materials, to avail itself of the services of other agents in China or abroad should it see fit to do so.

"Original invoices and inspectors' certificates are to be submitted to the Managing Director; and all purchases made by the agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

"No commission shall be paid to the agents except as above provided; but it is understood that the railway administration shall provide out of railway funds for the remuneration of consulting engineers whenever their services are engaged.

"With a view to encouragement of Chinese industries, preference will be given at equal



prices and qualities, over British, German or other foreign goods to Chinese materials and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

"It is understood and agreed that after the construction of the line is completed the Deutsch Asiatische Bank and the Chinese Central Railway Limited, within their respective sections, will be given the preference for such business, during the currency of the Loan, for the supply of foreign materials as the railway administration may require, on terms to be hereafter mutually agreed upon."

The above terms concede to the Chinese Central Railways, Ltd., or their official agents, a commission of 5% on all goods purchased or imported from abroad and all accounts must be certified to by original manufacturers invoices and inspectors' certificates. This provision was made to protect the railway from the excessive charges of goods purchased in the local market to which the agents' 5% commission would also be added. A slight misunderstanding as to the correct application of these provisions to an indent marked urgent, and which were purchased in the local market, arose between the managing director and the agents of the Chinese Central Railways which for a time also tended to foster the bitter feeling, but in justice to Taotai Low it is only fair to state that as soon as the matter was brought to the attention of the head of the house, he recognized the untenable position into which his firm had unwittingly been placed by an over zealous junior assistant, and promptly made all proper amends for the error.

"At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the Northern and Southern Sections respectively." "With a view to encouragement of Chinese industries, preference will be given at equal prices and qualities to Chinese materials and goods manufactured in China. No commission will be paid on purchases of such materials and goods."

The above stipulations of the Loan Agreement allow room for considerable scope of judgment in ordering material. At equal rates and qualities goods of British and German manufacture shall be given preference. If goods of other foreign make equal in quality and lower in cost are offered it permits of their acceptance and purchase, and in the interpretation of these words considerable ill feeling has been engendered. On the Northern end, under Teutonic influence, there has never been any question as to what goods were of the highest quality. Even the nails proceed from Germany. Cars, locomotives, rails, bridges and all other supplies were secured from Germany. With a German chief engineer, participating in the control of the accounts and enjoying the most harmonious relations with the Managing Director, any goods of German make were superior to the best foreign makes and no other nation had a look in at the contracts. It is alleged that this complete harmony in the working of the Northern Section is responsible for the fact that in some instances the goods were on the way to China from Germany at the time tenders were publicly invited in Tientsin. It is natural that a German engineer working in complete accord with the managing director should stipulate the purchase of German materials as the best for the road, and although other foreign goods might be cheaper, he would insist that the quality was very inferior therefore could not be considered and the managing director, guided by his superior technical knowledge, would so award the contracts. But the managing director of the Northern Section has lost his job and dragged down his superior director-general with him, giving harmonious relations a black eye in China. Germany has been thus placed in an awkward position. In the vernacular of the West, she is "buffaloed." To admit collusion between the German chief engineer and the disgraced managing director is of course impossible or she must concede the fact that the much vaunted Pukow terms fail to insure honesty when applied to German loans, and to admit this she simply strengthens the argument of British financiers that Pukow

terms fall short of safeguarding the interests of the investor.

But on the Southern Section, where harmonious relations have not obtained, Pukow terms are working out successfully to the credit of the Chinese government and the salvation of British endeavors. The situation is almost identical. The British chief engineer is patriotic to the core. It is quite impossible for the best foreign equipment to equal in quality the worst British make, therefore British goods are always recommended for purchase even at a higher rate. But the managing director who holds the purse strings is also patriotic and loyal to his charge, and, in addition, is a highly qualified railway engineer himself. It is difficult to accept the dictum of the chief engineer that British goods are the best and should be ordered when Continental and American manufacturers of world wide reputation bidding on the same tender, under identical specifications, are greatly lower in price. So it happens that the lack of harmonious relations, while reducing the total aggregate of British sales to the railway, effects economy for the Chinese government who is, after all, paying the bills. While conceding in a friendly spirit the bulk of the orders to British firms, some business has also been placed with the lower tenderers of other countries. Of the ten locomotives, eight were ordered from Great Britain and two from America. Of the 200 cars purchased, 50 were ordered from Belgium. In the north, the rails were purchased in Germany despite the express stipulation about preference to China's industries. In the South, the rail order went to the Hanyang Iron & Steel Works, and a considerable portion of the cement was secured from the Chee Hsin Company. It may be that the spirit of the Loan Agreement intended that German and British manufacturers should receive all the orders and that the provisions as published were only intended as "face pidgeon" but Taotai Low has stuck to the letter of the terms and awarded the contracts to the best advantage of his country.

With a German engineer on the North insisting that German goods are the best in the world and a British engineer on the south holding out the same for British goods, it takes considerable moral courage for a director to decide equitably on any tender. In justice, however, to those who have financed the loan, it is only fair that their nationals should receive the major benefits arising from its expenditure and the attitude of the British chief engineer is well taken, for if the lowest tenders are always accepted irrespective of nationality, German material would dominate the southern section as well as the northern, and this despite the fact that British tenderers received no consideration from their rivals. It is a serious matter now a days for any one engineer to arrogate to himself the power to pass judgment on the best types of engines or rolling stock or to maintain the point that the worst British make is superior to the best American or Continental goods, or vice versa. It generally lands him in hot water and keeps him busy dodging attacks. Aside from the delay natural to a serious disagreement between the high officials of the road, the progress of the Southern Section has been hampered by other causes. The survey of the line and working maps were not completed until the early part of this summer and up to date an estimate for the cost of construction has not been submitted by the Engineer which impossibilites the making out of a proper budget. In fact the many reasons which have appeared in the press throwing the onus of all the trouble on the Chinese managing director are grossly unfair in the light of precise information, and the chief engineer must assume his share of the burden of criticism. British interests should feel thankful that they were not placed in an undesirable position through the slack or supine methods of the Chinese official. While temporary profits may be curtailed and the road fall short of accepted British standards, the principle of economy so acceptable to China will be established and undoubtedly lead to larger returns and more substantial business in the future.

Work on the road is now progressing at a favorable rate and much of the friction is eliminated. With the completion of the survey

and working maps, the road has been divided into sections, divisional engineers appointed and earthwork started at various points. About 50 miles of road is now in hand and material is being delivered out on the road as fast as possible. At the Yangtse deep water terminus, wharves and warehouses with a large crane for handling heavy materials have been erected, and ocean steamers discharge alongside. Shipments of sleepers, cement, rails, cars, caissons, portable engines, etc., have already arrived and are being sent up the line by junks. About 2½ miles of temporary track has been laid connecting the river terminus with Pukow where the shops and headquarters of the southern section will be located. At this point a fair rate of progress is being made. The yard is all laid out, staff quarters erected, and locomotive, car and machine shops are about 60 per cent. completed. One Baldwin tank work locomotive is in operation in connection with the construction cars on the Pukow section. It may be stated that work on the first section is well in hand and progressing at a reasonable rate. The chief engineer in his speech on the occasion of the official ceremonies attending the formal commencement of the work on January 2nd last, promised to have the line completed in 2½ years. As the materials are now all ordered and on the way, the work is reduced to a matter of earthwork and bridges. There are no steep grades, tunnels or unusual cuts, but the low lying country calls for many long stretches of fill. There are a total of 198 openings or bridges on the line. In the first district there are 73 bridges, one 200 ft. span and 6.50 ft. being the longest. There are three other 100 ft. openings, the balance being mainly 50 and 30 feet. The most important bridge work is in the second district, between Hsiao Chi Ho and Hsi Tsu Fu stations. In the 110th mile the line passes over the Hsiao Ho on 8-200 foot spans, the most important bridge on the road, and in another few miles the Fet Ho is crossed on 62-30 ft. spans; in the 127th mile the Hsiao Ho is reached and crossed by 8-50 ft. spans, and in the 134th mile the Huee Ho by 1-200 ft. and 14-30 ft. spans. So the heaviest bridge work is concentrated in a district of 24 miles of road. In the third district, from Nan Hsu Chao to the Li Kwo terminus there are 94 openings the largest being one of 1-100 ft. and 10-30 ft. spans and another of 30-30 ft. spans.

The total length of the completed road according to finished surveys will be 233½ miles, and the line from the Yangtze Terminus north will include the following stations:

#### STATIONS AND PASSING LOOPS

NAME.	MILEAGE.
Yangtze Terminus.....	0
Pukow Shops Yard.....	1
Wa Cha Ying.....	7½
Tung Kwo.....	14½
Wu I.....	20½
Chu Chao.....	30½
Sha Ho Chi.....	39
Chang Pa Ling.....	45½
San Chieh.....	53
Kuan Tien.....	60½
Future passing Loop.....	64½
Ming Kwong.....	70½
Future passing Loop.....	74½
Hsiao Chi Ho.....	81
Lin Huai Kwan.....	93½
Hsi Li Ying.....	102
Pong Pu.....	108½
Tsao Lao Chi.....	117
Hsin Chao.....	126½
Kuchon.....	135½
Jen Chiao.....	144½
Hsi Tsu Pu.....	154½
Nan Hsu Chao.....	164½
Fu Li Chi.....	173½
Cha Kur.....	183½
Tsao Cheng.....	192
San Pa.....	201½
Hsu Chao Fu.....	211
Mow Chwang.....	213½
Liu Chon.....	224½
Li Kwo.....	233½

The railway has been remarkably fortunate in securing very low prices for their bridge work as will be seen from the comparative list of tenders. A price of £9-17-9 per ton for girders



delivered in China is tangible evidence of the success of the present arrangement and of the favorable prices secured through the agents of the Railway syndicate. This contract was therefore awarded strictly on the basis of the lowest tender.

A glance through the detailed tenders for locomotives, cars, rails, and steel girders, will give a fair idea of the keen international competition for Chinese railway orders in which all the leading manufacturers of the world participated. The task of passing judgment on these varied tenders would prove difficult to experienced engineers in any country. Any final award could not escape comment and charges of favoritism and the fact that Taotai Low has so far retained the good opinion of all tenderers, speaks volumes for his tact and judgment.

In addition to being a target for foreign criticism the director having charge of all purely Chinese matters has had no easy time with his own countrymen desiring to get rich

quick from the railway funds. A purely native company, composed largely of the gentry and a few mandarins, relying on their intimacy with the Director, bid for and secured a contract for a section of earthwork in Anhui province. Fine offices were engaged and the president and officers flitted around in carriages as befitted their station in life. The contract naturally was a losing one and they finally had to let go with the result that the Managing Director has had a difficult time in convincing his countrymen of his inability to make up their losses out of the railway funds. He is therefore unpopular and as some of the losers are quite influential, they are out after his official scalp. It is alleged that a contractor had tendered on the earthwork at Pukow for 30 cents per fang, but the foreign engineer proposed at the last minute that he should receive an increase of 25 cents more. This caused such astonishment amongst the other bidders that a scandal was only averted by giving the work to another.

#### COMPARATIVE LIST OF TENDERS FOR 100 LOW SIDED, 100 HIGH SIDED AND 50 COVERED WAGONS FOR THE TIENTSIN-PUKOW RAILWAY (SOUTHERN SECTION).—INDENT NO. 50.

Contract awarded:—

- 100 high sided cars to Messrs. Hurst, Nelson & Co., through Messrs. J. Bissett & Co.
- 50 covered wagons to the Metropolitan Amalgamated Railway Carriage & Wagon Co., Ltd., through Messrs. Jardine, Matheson & Co., Ltd.
- 50 low sided cars to Ateliers Métallurgiques of Belgium, through the China General Engineering Co.; 50 cars to be awarded.
1. Anderson Meyer & Co., Shanghai.
- Basteneir Works La Lauviera, Belgium, £220: £252: £195.
- Remarks: c. i. f. Pukow.
2. Brighton Malcolm & Co., Shanghai.
- Luds Forge & Co., England, £366-15: £342-7: £421.
- Luds Forge & Co., England, £339-15: £315-7: £408.
- Luds Forge & Co., England, £346-15: £322-7.
- Remarks: If wheels and axles by continental makers reduce by £27-1-0 each for high and low sided and £13-1-0 for covered.
3. China General Engineering Co., Shanghai.
- Les Ateliers Métallurgiques, £256-5-7: £242-5-5: £138-11-2.
- Remarks: c. i. f. Pukow.
4. China General Engineering Co., Shanghai.
- Les Ateliers Métallurgiques, £206-18-4: £184-13-10: £138-11-2.
- Remarks: Alternative wagons with built up under frames, c. i. f. Pukow.
5. Samuel McGregor & Co., Shanghai.
- L. P. Winby & Co., £287-13-0: £268-16-0: £208-1-6.
- Remarks: c. i. f. Pukow, shipment by Dec. 09.
6. Samuel McGregor & Co., Shanghai.
- Not specified. £250-16-0: £199-1-6.
- Remarks: Continental wheels and axles reduced low sided by £18 each and covered by £91-1-0 each.
7. Jardine Matheson & Co., Shanghai.
- Luds Forge Co., £351-18-0: £334-11-0.
- Remarks: Payment 15 days after delivery. Delivery Pukow.
- Pressed steel under frames and bogies laminated side bearing springs. Time as called for if order placed early July.
- Luds Forge Co., £331-10-0: £316-4-0.
- Remarks: Similar to first except bogies with coil springs.
- McKerrow & Co., £335-1-6: £326-8-0.
- Remarks: Sheffield Twin borrow Type, built up frames, diamond bogies.
- Nicaise Delcuve, Bel., £266-19-9: £249-5-0.
- Remarks: Pressed steel under frames and bogies with laminated bearing springs.
- Nicaise Delcuve, Bel., £254-4-9: £236-11-0.
- Remarks: Pressed up frames, Fox pressed steel bogies fitted with coil springs.
- Nicaise Delcuve, Bel., £265-4-0: £247-0-0.
- Remarks: Built up frames, pressed steel bogies with laminated springs.
- Nicaise Delcuve, Bel., £252-4-0: £234-12-0.
- Remarks: Built up frames, Fox pressed steel bogies.

- Brush Electric Eng. Co., £313-5-0: £294-12-6: £170-9-0.
- Remarks: Pressed steel under frames and bogies, laminated bearing springs. For cover wagons English wheels, axles, workmanship, but continental material.
- Brush Electric Eng. Co., £310-4-0: £291-12-0.
- Remarks: For cover wagons English wheels, axles, workmanship, coil bearing springs.
- Brush Electric Eng. Co., £290-18-0: £272-3-0.
- Remarks: Built up steel frames, pressed steel bogies, laminated bearing springs.
- Brush Electric Eng., £287-13-0: £269-0-0.
- Remarks: Built up steel frames, pressed steel bogies, coil springs.
- Brush Electric Engineering Co., £283-11-0: £264-19-0.
- Remarks: Built up steel frames, pressed steel bogies, laminated bearing springs, flat under frames and no trussed rods.
- Brush Electric Engineering Co., £280-10-0: £261-18-0.
- Remarks: Similar to previous one but fitted with coil bearing springs.
- Metropolitan Amalgamated Ry Carriage & Wagon Co., £246-16-0: £318-5-0: £188-14-0.
- Metropolitan Amalgamated Ry Carriage & Wagon Co., £328-9-0: £299-17-6.
- Remarks: Pressed steel bogies, coil springs, pressed steel under frames.
- Metropolitan Amalgamated Ry Carriage & Wagon Co., £285-12-0: £260-2-0.
- Remarks: Channel steel under frames, diamond bogies and coil springs.
- Middleton Car Co., £260-7-0: £235-3-0.
- Remarks: To their specification refer drawing 1523-A and specification 3734-A attached to tender. Wharf to be free for discharge.
- Middleton Car Co., £188-12-0.
- Remarks: To their specification No. 3747-C, drawing 1524-A.
- Attached with tender.
8. Melchers & Co., Shanghai.
- Hanover Wagon Factory, £486.
- Nerdingun Wagon Factory, £426-14-0.
- Gothaer Wagon Factory, £287-0-2.
- Remarks: Delivery in Jan. 1910, at Pukow, at tenderers' risk and cost if order given in June.
9. Mitsui Bussan Kaisha, Shanghai.
- American Car Foundry Co., £276-11-3: £262-7-2: £182-0-0.
- Remarks: Wheels and axles approved English makers.
- Dominion Car Foundry Co., £252-1-3: £237-17-2.
- Remarks: American type arch bar track for bogie.
- Ralston Steel Car Co., £257-11-0: £242-2-11.
- Remarks: American type of cast iron chilled wheels 33" dia. for bogie, c. i. f. Pukow. Delivery Jan. 1910.
10. Mitsui Bussan Kaisha, Shanghai.
- Midland Ry Carriage & Wagon Co., £321-15-0: £302-7-0: £195-8-0.—£316-10-0: £292-2-0

- Remarks: Alternate design for door as per maker's drawings 1004-B reduce £5-5-0.
- Midland Ry Carriage & Wagon Co., £318-12-0: £300-12-0.
- Remarks: Alternate design for door as per maker's drawings 100413 reduce £3-3-0 for high sided and £1-15-0 for low sided.
11. Telge & Schroeter, Shanghai.
- Blake Boiler Wagon Engineering Co., £395: £371-10-0: £260.
- Remarks: To maker's specification, 450 pair wheels and axles 9747.
- T. Baker Co. Makers. 100 pair wheels and axles 2227 T. Baker Co. maker.
- W. Raushaw & Co., £318-12-7 1-5: £296-15-0: £205-3-7 1-5.
- W. Raushaw & Co., £307-18-7 1-5: £286-1-0.
- Remarks: Alternate diamond frame bogie.
- W. Raushaw & Co., £296-19-9 3-5: £292-13-1 1-5: £181-19-7 1-5.
- Remarks: Plate frame bogie.
12. Shewan Tomes & Co., Shanghai.
- Hearst Welson & Co., £323: £303-6-0: £218-5-0.
- Remarks: Payment 15 days after delivery. Time as called for if order placed within 10 days.
13. Mitsui Bussan Kaisha, Shanghai.
- Société Anonyme des Ateliers Camille Bastinier, £280-19-0: £263-9-0: £195-16-7.
- Remarks: Axles and wheels by approved English makers.
- Société Anonyme des Ateliers Camille Bastinier, £260-19-0: £243-9-0: £185-16-7.
- Remarks: Alternative with axles and wheels by continental makers.
14. Anderson Meyer & Co., Shanghai.
- Am. Car Foundry & Co., £275: £260: £182.
- Remarks: As per maker's specification, c. i. f. Pukow. Payment on delivery of cars.
- Am. Car Foundry Co., £234: £218.
- Remarks: Am. type arch bar track, Am. type cast iron chilled wheels with continental wheels, axles, bearings prings, brake, Tournal bearing, etc.
15. Westphal King & Ramsay, Shanghai.
- W. R. Runshaw, £284: £264-13-0: £167-18-0.
- Remarks: Plate frame bogie.
- £276-10-0: £259-15-0.
- Remarks: Diamond frame bogie.
16. China Japan Trading Co., Shanghai.
- Ateliers Camille Bastinier, £245-3-6: £260-8-0: £194-5-0.
- Remarks: Continental wheels and axles.
- Ateliers Camille Bastinier, £266-3-6: £281-8-0: £102-7-6.
- Remarks: English wheels and axles.
- Head Wrightson & Co., £339-8-3: £319-4-0: £201-12-0.
- Remarks: Wheels and axles by approved makers. Delivery to be taken as fast as steamer can discharge.
17. During Wibel & Co., Shanghai.
- British Electric Engineering Co., £303-2-2 2-5: £284-2-9 3-5: not quoted.
- Remarks: Payment 1/3 with order, balance on delivery Pukow, whole lot F. O. B. any English port, if order placed in June, in Nov. Tubular Brake Beam substituted.
18. Gunniss Riddle, Shanghai.
- Société Anonyme La Construction, £436: £414: £252.
- Remarks: Underframes, bodies by Société Anonyme La Construction, and wheels and axles by approved British makers 1 1/2% discount to each payment vs. B-L, Insurance Policies, etc.
19. Westphal King & Ramsay, Shanghai.
- B. Electric Engineering Co., £308-18-7 1-5: £289-12-0.
- Remarks: Payments 1/3 with order, balance on delivery at Pukow—Tubular Brake Gear substituted.
20. Arnhold Karberg & Co., Shanghai.
- American Car Foundry Co., £312-6-0: £298-9-0: £199-14-0.
- American Car Foundry Co., £280-16-0: £266-19-0.
- Remarks: 42" steel typed wheels. American Arch Bar Trucks, wheels and axles by British makers.
- American Car Foundry Co., £230-13-0: £216-14-0.



- Remarks: Am. Arch Bar Truck with American type chilled cast iron wheels 30" wheels and axles by British makers.
21. Buchheister & Co., Shanghai.  
Heart Nelson & Co., £321-18-0: £304-6-0: £212-15-0.  
Remarks: F. O. B. Glasgow 39 wps. from order.  
Heart Nelson & Co., £315-4-0: £297-12-0: £209-2-0.  
Remarks: Wheels and axles by Awen & Dyson, c. i. f. Pukow, 32 wps. from order.
22. Westphal King & Ramsay, Shanghai.  
Heart Nelson & Co., £323: £303: £210.
23. Samuel McGregor, Shanghai.  
Heart Nelson & Co., £321-15-0: £302-7-6: £211-5-0.  
Luds Forge & Co., £363-10-0: £342-17-0: £210-10-0.  
Remarks: Fox accelerated Oct., 09, c. i. f. Pukow. Consignees to take delivery in own craft. Pressed steel corrugated doors, under-frames, bogies with laminated side bearing springs.  
Luds, Forge & Co., £317-10-0 £296-17-0: £197.  
Remarks: Alternative.  
Hearst Nilson & Co., £294-15-0: £275-7-6: £197-15-0.  
Continental wheels and axles reduce £27-0-0 for Bogie and £13 for covered.  
Luds Forge & Co., £344-10-0: £323-17-0: not quoted.  
Remarks: Open ended type Bogie with coil bearings springs reduce £19.
24. Sino Francaise Engineering Syndicate, Shanghai.  
Baune et Marpent, A—£319: 298-10-0: £270-10-0. £288: £266-10-0: £158-10-0.  
Remarks: Pressed steel plate under-frames, English wheels and axles.  
Remarks: Pressed steel plate under-frames, Belgium or Ger. Wheels.  
B—£303-10-0: £282-10-0.  
273: £251.  
Remarks: Pressed steel plate under-frames, Eng. steel plate bogie on English wheels.  
Pressed steel plate under-frames on steel plate Bogie, Belgium or German wheels.  
C—£297: £276.  
£266-10-0: £244-10-0.  
Remarks: Pressed steel plate under-frames on dia. Bogies, Eng. Whs.  
Remarks: Pressed steel plate under frames on dia. Bogies, Ger. or Bel. Whs.  
D—£296: £275-10-0.  
£265-10-0: £243-10-0.  
Remarks: Normal profile steel under-frames, pressed steel plate bogies, English wheels.  
Normal profile steel under-frames, pressed steel plate bogies, German or Belgium wheels.  
E—£280: £259-10-0.  
£250: £328.  
Remarks: Normal profile steel under-frames, steel plate Bogies, English wheels.  
Normal profile steel underframes steel plate Bogies German or Belgium wheels.  
F—£273-10-0: £253:  
£243-10-0: £221-10-0.  
Remarks: Normal profile steel under-frames, diamond type Bogies, English wheels.  
Normal profile steel under-frames, diamond type Bogies, Belgium or German wheels.
25. Scott Harding & Co., Shanghai.  
Benshaw & Co., £291: £277-8-0: £167-16-0.  
Benshaw & Co., £279-10-0: £265-3-4 4-5.  
Remarks: Steel plate and angle iron Bogies.  
Benshaw & Co., £275-5-2 2-5: £260-19-7 1-5.  
Remarks: Diamond Bogie frames.  
Nicaise & Delcuve, £272-13-2 2-5: £254-9-0: £186-17-7 1-5.  
Remarks: Built up under-frames.  
Nicaise & Delcuve, £274-16-2 2-5 £256-12-0.  
Remarks: Pressed steel under-frames.
26. Dodwell & Co., Shanghai.  
Brush Electric Engineering Co., £276-1-6: £257-17-6: £151-19-0.  
Remarks: Pressed steel under-frames and bogies laminated bearing springs.  
Brush Electric Engineering Co., £253-10-6: £235-6-6.  
Remarks: Built up steel under-frames (alternative A).  
English Works, £246-7-0: £228-3-0.

- Remarks: Built up steel under-frames (alternative B). Bearing springs.  
English Works, £273: £254-16-0.  
Remarks: Pressed steel under-frames and bogies, special bearing springs.  
English Works, £250-9-0: £232-5-0.  
Remarks: Built up steel under-frames pressed steel bogies (alternative A), bearing springs.  
English Works, £243-5-6: £225-1-6.  
Remarks: Built up steel under-frames, pressed steel bogies (alternative B), bearing springs.  
English Works, £256-12-0: £238-8-0.  
Remarks: Pressed steel under-frames, diamond frame bogie.  
English Works, £234-1-0: £215-17-0.  
Remarks: Built up steel under-frames (alternative A), diamond frame bogie.  
English Works, £226-17-6: £208-13-6.  
Remarks: Built up steel under-frames (alternative B), diamond frame bogie. All wheels are of mild steel disc centres, tubular brake beam substituted.
27. Vulcan Iron Works, Shanghai.  
R. Y. Pickering & Co., £296-3-7 1-5: £278-8-4 4-5: £168-18-0.  
Remarks: British make material. If wheels and axles by maker reduce £2-10-0 for bogie and £1-5-0 for covered wagons. Pay 10 days after each shipment.
28. Ilbert & Co., Shanghai.  
A. Not specified, £290: £272-17-0: £185-15-0.  
B. Not specified, £276: £259-7-0: £171-4-0.  
Remarks: Belgium wagons, wheels by approved maker.  
C. Not specified, £254-4-0: £236-11-0: £175-7-0.  
Remarks: Wheels and axles by any good maker. For the covered wagon wheels and axles are by Vereingte Stahlweske Van des Zypenhoeln.  
D. Not specified, £278: £261-9-0.  
Remarks: Wheels and axles by Vereingte Stahlweske Van der Zypen.  
E. Not specified, £269-15-0: £254-4-0.  
Remarks: Wheels and axles by approved makers, rolled steel channel under-frames and diamond frame bogies, British throughout.  
F. Not specified, £271-17-0: £252-2-0.  
Remarks: Rolled steel channel under-frames, British wagon, wheels and axles by Vereingte Stahlweske Van der Zypen.  
G. American Car Foundry £372: £357: £224.  
Remarks: Wheels and axles by approved makers.
29. J. P. Bisset Co., Shanghai.  
Hearst Nelson & Co., £310-19-0: £291-7-7: £209-4-10.
30. Arnhold Karberg & Co., Shanghai.  
R. Y. Pickering & Co., £337-6-0: £316-16-0: £189-12-0.  
Remarks: Couplers by Henricut Steel Foundry & Co., types and wheels by Steel Co. of Scotland.
31. Craig & Co., Shanghai.  
£266-10-0: £251-2-6.  
Remarks: Rolled steel channel under-frames, diamond frame bogie, wheels by approved maker.  
£268-11-0: £249-1-6.  
Remarks: Rolled steel channel under-frame, wheels and axles by Vereingte Stahlweske Vander Zypen.  
£274-14-0: £258-6-0: £179-7-6.  
Remarks: To our specification, wheels and axles by same maker as previous.  
£251-2-6: £233-14-0: £169-2-6.  
Remarks: To our specification wheels and axles by any good maker.  
£287: £269-11-6: £183-9-6.  
Remarks: To our specification, wheels and axles by approved maker, British.  
£272-13-0: £256-5-0.

#### COMPARATIVE LIST OF TENDERS ON INDENT 51 FOR EIGHT LOCOMOTIVES FOR THE IMPERIAL TIENTSIN-PUKOW RAILWAY (SOUTHERN SECTION.)

The contract for six locomotives was awarded to the North British Locomotive Co. of Glasgow, through Messrs. Jardine, Matheson & Co., Ltd., and two locomotives to the Baldwin Locomotive Works of Philadelphia, through Messrs. Arnhold, Karberg & Co.

- Remarks: Belgium wagons, wheels and axles by approved maker, British.
32. Horatio Robertson, Shanghai.  
Société Anonyme des Ateliers Camille Bastanier, £285: £263: £206.  
Remarks: Built up type all Belgian.  
£311: £286: £218.  
Remarks: Built up type Belgian Bodies underframe with British wheels and axles.  
£216: £196: £172.  
Remarks: Built up type Belgian make bodies under-frames without wheels which will be by approved British makers supplied separate. 180 delivery Jan. 1910.
33. Dodwell & Co., Shanghai.  
Middletown Car Works, G. \$1283.88: G. \$1162.38: G. \$927.56.  
Remarks: To maker's design and specification. Am. wheel and axles.  
Middletown Car Works, G. \$1267.30: G. \$1147.74: G. \$912.23.  
Remarks: Amendment.
34. American China Co., Shanghai.  
Hich Loco & Car Works, £675: £695.  
Remarks: Second hand cars.
35. Mackenzie & Co., Shanghai.  
Cravens of Sheffield, £298-5-9 3-5: £278-5-0: £211-2-4 4-5: £163-2-0.  
Nclellan Sto.  
Remarks: Alternative.
36. Arnhold Karberg & Co., Shanghai.  
Wegmann & Co., Cassell, £323-3-0: £304-6-0: £234-6-0.
37. Centrale de Construction, Shanghai.  
Wegmann & Co., Cassell, £350: £340: £270.
38. Arnhold Karberg & Co., Shanghai.  
American Car Foundry Co., £305-15-0: £292-5-0: £193-15-0.  
Remarks: Wheels and axles and truck by British makers.  
£275: £261-10-0.  
Remarks: With steel typed wheels, 42" wheels and axles by British makers.  
£223-15-0: £210.  
Remarks: American type chilled cast iron wheels, 33" wheels and axles by British makers.
39. Vulcan Iron Works, Shanghai.  
R. Y. Pickering & Co., £288-19-4 4-5: £271-10-9 3-5: £162-14-9 3-5.  
Remarks: Pay ten days after each shipment; if makers' wheels and axles are used reduce £2-10-0 for the Bogies and £1-5-0 for covered wagons.
40. Fearon Daniel & Co., Shanghai.  
Gloucester Ry Carriage Wagon Co., £333-6-0: £313-2-0: £191-18.
41. Forbes & Co., Shanghai.  
Pressed Steel Car Co., U. S., G. \$1750: G. \$1670.
42. Garrells Borner & Co., Shanghai.  
Midland Ry Carriage Wagon, £320-1-0: £311: £203-13-0.  
Remarks: Alternative sole bars reduce £5 each Bogie. Alternative doors reduce £3 for high sided and £1-10-0 for low sided.
43. Carlowitz, Shanghai.  
German make, £284-8-0: £270: £188-7-0.  
Remarks: Without brakes 4 block screw brake for bogie at £10-9.
44. Nicholas Tsu, Shanghai.  
Not specified, £348: £338: £268.  
Remarks: 4 block screw brake for covered at £12-9.
45. Diederichsen, Shanghai.  
Waggong Tabrich Uerduigen, £385.  
Remarks: Order not later than 15-7-09.
46. Chee Sheng Iron Works, Shanghai.  
\$2800: \$2500: \$2200.  
Remarks: Duty, insurance extra.
47. Olof Wijk & Co., Shanghai.  
A. Makers. £353-10-0: £336: £223-10-0.  
Remarks: Exclude cost of erection.  
B. Makers, £338: £320-10-0: £208.
48. Compagne Générale de Constructions Industrielles, Shanghai.  
\$2650: \$2250: \$2800.

1. Scott, Harding & Co., Shanghai.  
A. Borsig & Co., £3157-12-6: £25261.  
Robert Stephenson, £3399-10-0: £2719.  
N. British Loco. Co., £3425-7-6: £2740.
2. Von Duering Wibel & Co., Shanghai.  
At their option £3137-10-0: £25100.





ANHUI RAILWAY.—REINFORCED ABUTMENTS AND PIER AT WAN-CHI, 20 MILES FROM WUHU



A. R.—LARGE REINFORCED CULVERT UNDER CONSTRUCTION



A. R.—REINFORCED CONCRETE CULVERT UNDER CONSTRUCTION



A. R.—REINFORCED CONCRETE ABUTMENT UNDER CONSTRUCTION



A. R.—LIUHU BRIDGE PIERS OF REINFORCED CONCRETE

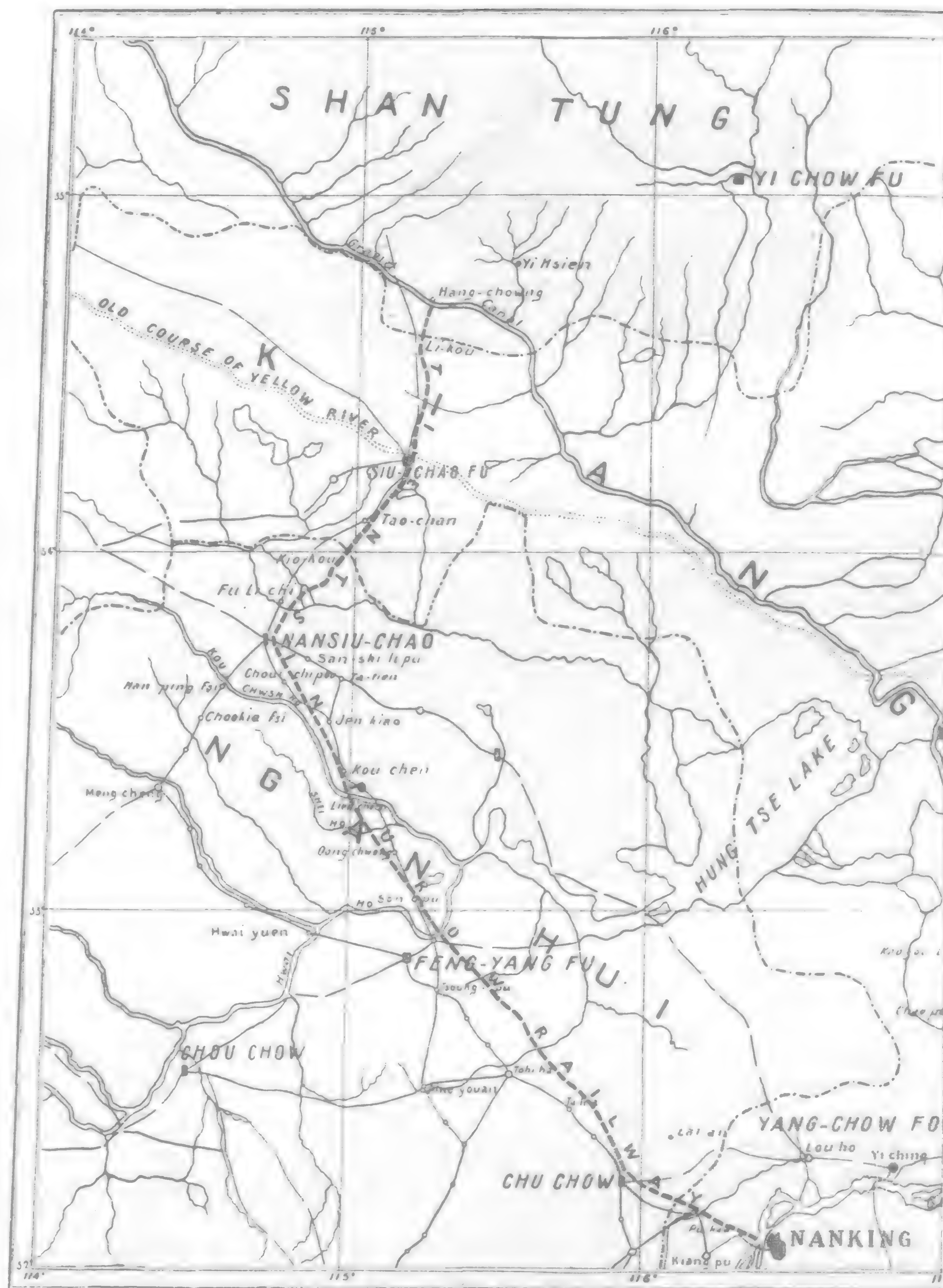
3. Ilbert & Co., Shanghai.  
Vulcan Foundry, £3420-0-0: £27360.  
British make £3305-0-0: £26440.  
German make £2936-0-0: £23488.  
Any good make, £2775-0-0: £22200.
4. Dodwell & Co., Shanghai.  
N. British Loco. Co., £3415-0-0: £27320.  
Société Anonyme des Ateliers de Thirion  
£2795-0-0: £22360.  
A. Borsig, £3222-0-0: £25776.  
Mitsui Bussan Kaisha, Shanghai.  
American Loco. Co., £3154-6-0: £25234-8-0.  
American Loco. Co., £3053-3-6: £24425-8-0.  
American Loco. Co., £2973-11-4: £23788-10-8.  
Mitsui Bussan Kaisha, Shanghai.  
N. British Loco. Co., £3491-16-0: £27934.  
Buper Peacock & Co., £3743-10-9: £29948-6-0.  
Olof Wijk & Co., Shanghai.  
Société Anonyme, £3809-10-0: £30476.  
John Cockerill Seraing Machine & Locomotive,  
£3627-0-0: £39016.  
Melchers & Co., Shanghai.  
Works Essnigen, £3130-17-0: £25046-16-0.



CHEKIANG RAILWAY.—TYPE OF RENSHAW &amp; CO.'S GOODS WAGON, FURNISHED THROUGH MESSRS. BRIGHTEN, MALCOLM &amp; CO., LTD.



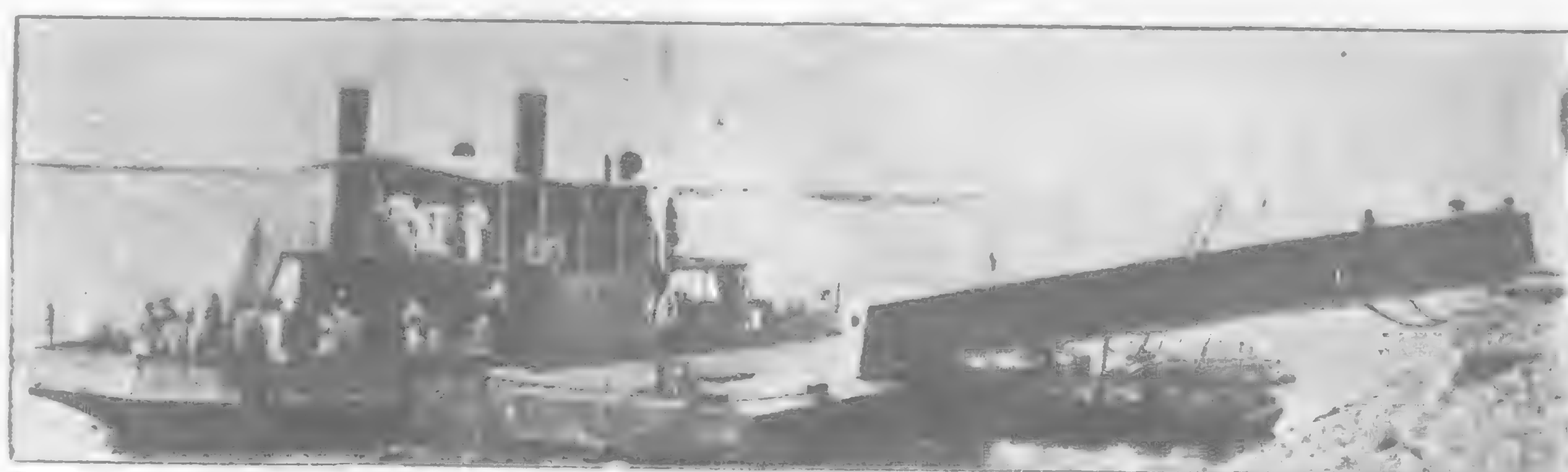
9. Vulcan Foundry, Shanghai.  
Makers, £3500-0-0: £28000.
10. Andersen Meyer & Co., Shanghai.  
Société Anonyme des Ateliers de Thirion,  
£2925-0-0: £23400.
11. Andersen Meyer & Co., Shanghai.  
Société Anonyme Franco Belge of Rasunes,  
£3591-6-0: £28730-8-0.
12. Andersen Meyer & Co., Shanghai.  
Andrew Barclay Sons, £3645-0-0: £29160.
13. Carlowitz & Co., Shanghai.  
Heuschel & Sohn, Cassell, £3108-0-0: £24864.
14. Sino French Syndicate, Shanghai.  
Société Anonyme de Saint Leonard, £3650-0-0:  
£29200.
15. Mackenzie & Co., Shanghai.  
Robert Stephenson, £3437-10-0: £27500.
16. Westphal King & Ramsay, Shanghai.  
Nasmyth Wilson & Co., £3410-0-0: £27280.
17. Siemssen & Co., Shanghai.  
Georg Eggestorff, £3095-0-0: £24760.
18. Innis & Riddle, Shanghai.  
Andrew Barclay Sons, £3996-0-0: £31968.
19. Bielfeld & Son, Shanghai.  
Robert Stephenson, £4625-0-0: £37000.
20. China Japan Trading Co., Shanghai.  
N. British Loco. Co., £3513-16-6: £28110-12-0.
21. Telge & Schroeter, Shanghai.  
A. Borsig, £3240-0-0: £25920.  
Georg Eggestorff, £3250-0-0: £26000.  
Krauss & Co., Munich, £3280-0-0: £26240.  
Hawthorn Leslie, £3879-0-0: £31032.
22. Samuel McGregor & Co., Shanghai.  
N. British Loco. Co., £3451-0-0: £27608  
Kitson & Co., Leeds, £3565-0-0: £28520.  
Beyer Peacock & Co., £3689-0-0: £29512.
23. China Gen. Engineering Co., Shanghai.  
Les Ateliers Métallurgiques, £2460-2-2: £19-  
654-4-0. £458-10-11: £3668-7-4. £2918-  
13-1: £23322-11-4.
24. Buelfeld & Ones, Shanghai.  
Hohensolhun Dusseldorf Grafewberg, £3708-  
0-0: £29664.
25. Brighten Malcolm & Co., Shanghai.  
Hudswell Clarke, £4515-0-0: £36120.  
Vulcan Foundry, £3395-16-6: £27166-12-0.
26. Shewan Tomes & Co., Shanghai.  
Hawthorne Leslie, £3469-0-0: £27752.
27. Jardine Matheson, Shanghai.  
N. British Loco. Co., £3143-0-0: £25144.  
Haunoversche Maschinenbau Action Gesells-  
chaft, £2885-0-0: £23080.  
Vulcan Foundry, £3347-0-0: £26776.  
Lenia Loco. Machine Co., £2971-0-0: £23768.  
£2802-0-0: £22416.
28. Samuel McGregor & Co., Shanghai.  
Winhy & Co., £2853-0-0: £22824.  
A. Borsig, £3234-0-0: £25872.
29. Horatio Robertson, Shanghai.  
Société Anonyme des Ateliers de Thirion,  
£3060-0-0: £24480.
30. Garrells Borner, Shanghai.  
F. H. Maffie, £3202-0-0: £25616.
31. Tahata & Co., Shanghai.  
Berliner Maschinenbau Action Gesellschaft,  
£3624-6-3: £28994-10-5.
32. Craig & Co., Shanghai.  
Not specified, £3264-12-6: £26117.  
£2900-15-0: £23206.  
£2741-17-6: £21935.
33. J. Whittall & Co., Shanghai.  
N. British Loco. Co., £3150-0-0: £25200.
34. Buchheister & Co., Shanghai.  
Robert Stephenson, £3509-0-0: £28072.  
Kitson & Co., £3632-0-0: £29056  
Beyer Peacock, £3776-0-0: £30208.
35. Am. Chinese Co., Shanghai.  
Beyer Peacock, £3976-0-0: £31808.
36. J. B. Bisset, Shanghai.  
Robert Stephenson, £3388-6-2: £27106-9-4
37. Westphal King & Ramsay, Shanghai.  
Haunoversche Maschinenbau Haunover Lin-  
den, £3041-0-0: £24328.  
Nasmyth Wilson, £3510-0-0: £28080.
38. Am. Chinese Co., Shanghai.  
Robert Stephenson, £3830-0-0: £30640.
39. Arnhold Karberg, Shanghai.  
Baldwin Loco. Works, £3127-0-0: £25016.  
Baldwin Loco. Works, £3037-0-0: £24296.  
Baldwin Loco. Works, £2767-0-0: £22136.
40. Westphal King & Ramsay, Shanghai.  
Robert Stephenson, £3410-0-0: £27280
41. Westphal King & Ramsay, Shanghai.  
N. British Loco. Co., £3420-0-0: £27360



TIENTSIN-PUKOW RAILWAY.—(SOUTHERN SECTION)



S. C. R. V.—FREIGHT CAR



I. R. N. C.—FERRY BOAT OVER THE LIAO RIVER



# KOWLOON-CANTON RAILWAY

(BRITISH SECTION.)



KOWLOON-CANTON RAILWAY.—VIEW OF RECLAMATION FOR KOWLOON TERMINAL YARDS AND STATION

The Kowloon-Canton Railway project that has for its purpose the safeguarding of the interests of Hongkong as a distributing center for South China by establishing railway connection with the trunk line that, when completed, will run from Canton to Peking, is perhaps one of the most important undertakings in South China. When the Canton-Hankow section of the trunk line to Peking was projected and a concession granted the American-China Development Company, it was proposed to construct a deep water harbor in the Chinese territory near Canton, the terminus. Hongkong at once realized that if such a port were established and no effort made to secure the benefits of railway connection with the trunk line, her future as a distributing center for South China would be threatened. A concession was secured in 1898 by the British and Chinese Corporation to build a line connecting Kowloon and Canton which, when completed, would provide the needed railway connection with the trunk line and thus preserve

to Hongkong at least her share of the trade even should the deep water harbor contemplated at Canton be realized.

After securing the concession, the British and Chinese Corporation remained inactive and it was not until the Government and commercial interests of Hongkong were roused to the necessity of securing this railway connection at all hazards even to the extent of pledging her revenues, that the project took form. As evidence of the interest taken we quote from the speech of the Hon. Gresham Stewart, Chairman of the Committee of the China Association, made in October, 1905, in support of a petition to the Governor, as follows:

"Whatever the reason, the fact remains that a big financial body like the British and Chinese Corporation have utterly failed to utilize the concession they have held, and it is unreasonable to suppose that this colony will sit still and run the risk of tremendous injury without doing something to protect itself." And further, he continued:

"What we would like to see laid down is the broad principle that for the preservation of the colony, and the safeguarding of British interest in South China, the colony be empowered, if necessary, to pledge its credit to ensure the making of the railway and securing the terminus at Kowloon."

It must be understood that the concession secured by the British and Chinese Corporation contemplated only the construction of the line in Chinese territory. From Canton to the boundary of the leased territory is approximately 89 miles and the distance from the boundary of the leased territory to Kowloon, a distance of 22 miles. Up to the time of Mr. Stewart's speech in October, 1905, it might be said that the concessionaires had accomplished nothing. But in the mean time, the American-China Development Company agreed to give up its concession to construct the Canton-Hankow and receive in return the sum of \$6,750,000 U. S. C. in compensation. The Chinese Government failed in an attempt to raise sufficient money by a domestic loan to pay off the American company and was obliged to negotiate a foreign loan. This was the opportunity for Hongkong and arrangements were made by the latter to advance the Chinese the sum of £350,000 secured by the opium revenue of Kwangtung, Hupeh and Hunan, bearing interest at 4.5% per annum and redeemable in 10 years. This secured to Hongkong traffic connection with the Canton-Hankow and eliminated the possibility of severe competition from the rail-

way as threatened in the original proposed plans for the Canton terminus.

The Government of Hongkong then proceeded to make arrangements to construct the line through British territory and in the fall of 1905 surveys for final location were completed and submitted and the title to the land for the right of way resumed by the Crown. Before the end of 1905 about two and a half miles embankment work were completed under the direction of the Public Works Department.

The estimated grade of the line from Kowloon to Samchun (the point at the border of British territory) is about one in one hundred. There are about 50 bridges running from five feet in length to the largest one of 200 feet, the latter having two 60 and two 40 foot spans.

These are built largely of masonry and concrete, but where the necessary foundations could not be laid, girder bridges with brick piers were constructed. All the bridges were built sufficiently wide to accommodate a double track.



KOWLOON-CANTON RAILWAY.—GERMAN DUMP CAR



KOWLOON-CANTON RAILWAY.—GERMAN DUMP CAR





KOWLOON-CANTON RAILWAY.—NORTH FACE OF BEACON HILL TUNNEL, FROM ACROSS SHATIN VALLEY

The most difficult features of construction were the tunnel work and the cuts. In all there are five tunnels, the longest being 7,256 feet and the balance 924 feet, 350 feet, 175 feet and 150 feet respectively. The tunnels 350 feet and 150 feet in length were driven through solid rock, while the operations on the balance found disintegrated granite alternating the solid rock. All the tunnels were driven wide enough to accommodate a double track with the exception of the 7,256 foot, and the span of the arch in each of these tunnels is 35 feet lined with brickwork. The drainage is from the ends of the tunnels in each instance. The cuts were also 35 feet wide in which solid rock and disintegrated granite predominated.

The steel used is the English standard tee rail weighing 85 pounds to the lineal yard, each rail being 35 feet in length. They are being laid with matched joints and ordinary angle bars are utilized. Suspended joints are the standard and five-eighths spikes with chisel point and ordinary hook head are used.

Australian hardwoods are used for sleepers. The standard for jarrah ties is 9" x 5" x 10 feet and distributed at an average of 2,000 to the mile, while the standard of New South Wales hardwood is 10" x 5" x 10 feet.



NORTH PORTAL OF TAIPO TUNNEL. BRIDGE 25 IN FOREGROUND TO LEFT. THE TEMPORARY ROAD HAS BEEN TAKEN DOWN



KOWLOON-CANTON RAILWAY.—VIEW FROM NORTH PORTAL OF NO. 5 TUNNEL, SHOWING BRIDGE NO. 25 UNDER CONSTRUCTION

The embankments throughout are 17.5 feet wide designed for a single track except where material was available from the cuts, in which instances they were widened to 30 feet so as to accommodate the proposed double tracking. The labor used in the construction across the paddy fields was mostly comprised of native women and the vehicle the native basket. The material used in the fields consisted of mud on the slopes, turf; and the rest of the embankment is built largely of disintegrated granite. The earth from the heavy cuts was transported generally in small dump cars propelled on a two foot gauge track by coolies. These cars were supplied by Arthur Koppel, Berlin.

The labor for the tunnel work was imported from India as the local natives could not be induced to undertake underground work. Finally some of the coolies, returned from South Africa, replaced the Indians, as the former had become expert at this work. Compressed air plants were installed at the ends of the big tunnel to operate the pumps and the drills. Railways were installed to handle the dirt and rock. Contracts for portions of the work on the smaller tunnels were let to Italian contractors.

The bricks used were manufactured by the company in its brick plant installed on the right of way and were transported in Indian

carts drawn by bullocks. This means of transport was found satisfactory and economical.

The reclamation work which is to provide a terminal yard at Kowloon with seven or eight miles of sidings is well under way and the work was expedited by utilizing a standard gauge track from the heavy cuts to carry the earth, etc., for the fill. Heavy wooden dump carts hauled by switch engines were used. The rails will be used on the permanent way and the switch engines were part of the company's regular rolling stock. Sidings will also be provided to connect with the warehouses and godowns.

The rolling stock will be of British standard. Two locomotives have been ordered to add to the present yard engines and the coaches and freight cars will be ready for use by the time the road is officially opened next year. The estimates for the British section alone is believed sufficient to provide rolling stock for over two thirds of the line from Kowloon to Canton. Along the 22 miles of line there will be five stations. These stations as well as the buildings at Kowloon terminal will be built of brick and of a substantial character.

The cost of this railway has been the subject of much discussion in the colony. The original estimates submitted amounted to \$5,053,271. These estimates did not include many items



of cost and were based on a rather indefinite preliminary survey. They did not make provision for rolling stock, shops, etc. Indeed they were not recognized as other than a rough calculation. It was not until June, 1907, that the first comprehensive estimate was submitted by the Resident Engineer. It did not provide for rolling stock or workshops, and amounted to \$8,003,642. Again in December, 1907, estimates including rolling stock and resumption of land at Blackhead's point were submitted which brought the amount up to \$9,860,283.83. In May, 1909, the estimates submitted included the workshops and all items of construction with the exception of land purchase or resumption and amounted in all to \$11,004,128. It is expected that up to the end of the year 1909, the sum of \$10,015,223 will have been expended and the budget for the year 1910 provides for an expenditure of \$1,315,625, which will bring the cost of the line up to about \$12,000,000. Of the expenditure for 1910, \$374,805 will be used for the resumption of land and the balance will be expended as follows: Bridges, \$120,000, fencing, \$14,653; track, \$125,000; workshops, \$60,000; stations, \$238,300; station machinery, \$25,000; furniture, \$5,000; rolling stock, \$80,000; tools and plant for locomotive and carriage shops, \$60,000.

The following comparative table of estimates made in 1905, 1907 and 1909 respectively will be of interest.

	1905	1907	1909
Survey	37,642.00	42,267.65	42,277.65
Land	10,500.00	1,196,538.02	1,195,879.20
Earthwork	1,530,997.00	2,260,000.00	2,268,176.05
Tunnels	1,924,860.00	2,503,415.00	3,499,824.69
Roads	412,650.00	82,500.00	84,979.84
Bridges and Culverts		1,033,577.67	1,082,614.50
Fencing		32,209.45	40,399.45
Telegraphs		26,864.00	26,971.42
Ballast and Permanent Way	716,625.00	915,955.94	864,259.25
Station Buildings, Machinery and Furniture	315,000.00	489,380.00	494,998.47
Workshops and Stores		714,000.00	60,000.00
Plant including rolling stock, etc.			691,540.10
General charges, including salaries, quarters, offices, medical and other expenses	105,000.00	450,234.38	534,885.56
Home charges		70,099.80	74,478.29
Accounts			42,843.53
Damages, etc.		43,242.37	
Total	5,053,274.00	9,860,283.83	11,004,128.00

At a meeting of the Hongkong Legislative Council, held May 14th, 1909, upon which occasion the report of the Resident Engineer was presented for consideration, Sir Frederick Lugard, Governor of Hongkong, made the following comprehensive statement in regard to the finances and the progress made in construction which is perhaps the most complete and authoritative review of the line. His Excellency said:

"Gentlemen, before proceeding to the business of the day, I have to make a statement regarding the progress of the railway. There is among the papers laid on the table this afternoon first a report by the chief resident engineer, and in connection with that report you will no doubt notice that the various departmental reports which have been laid on the table this afternoon are not in the usual form. They do not bear the heading 'Laid Before the Legislative Council', but are headed Appendix with a letter of the alphabet. The reason of this slight alteration is that we propose in future to somewhat condense these departmental reports and publish them in a small volume, which will be laid before the Council. But in order not to

further delay these reports, such as are already printed have been laid this afternoon. On February 6th last I made a statement to the Council as to the progress and the financial position of the Canton-Kowloon Railway. And again, when introducing the estimates on 24th of September last, I reported such progress as had taken place in the interval, and I promised that I would make an annual report to the Council, both as regards finances and the progress of the railway, the liability which we are incurring in respect of it; and the ways in which these liabilities are to be met. I much regret the delay in presenting this annual report and laying this statement. I had hoped it would be ready at one of the earlier meetings of the year. We have no resolution this year before Council for votes for the construction of the railway during the year because, under the new financial instructions, which have been lately received from the Colonial Office, the requisite funds for the construction during the year are included in the annual estimates. I propose, however, to follow the course I did last year, and to give you as full a statement of events connected with the railway as I can, and I will endeavor to make as clear as possible the situation both as to expenditure and the prospects both as regards time and date of completion. And I hope I shall be able to amplify the report of the chief resident engineer, and draw your attention to the significance of the figures. I will deal first with expenditure, and I am sorry to say it is not an exhilarating subject. First of all we had an estimate by Mr. Bruce which amounted to \$5,053,274. That estimate, as I explained in my former statement, was a very rough one. It was based on a very rough preliminary survey and included no calculation of quantities and many important items such as rolling stock, workshop, etc. It was accepted as a rough estimate by my predecessor when the railway first began. The first full estimate that we had from the chief resident engineer, appointed by the consulting engineers, was in June, 1907. That amounted to \$8,003,642. It did not include any provision for rolling stock or for workshops, because at that time it was impossible to know exactly what rolling stock would be required, and whether or not we would require any workshops. At the end of the same year, December, 1907, a further estimate was submitted to the Council, which amounted to \$9,860,283. Provision for rolling stock was inserted and the estimate also included the cost of the resumption of the deep sea wharf in the neighborhood of Blackhead's point, but it still did not include any provision for workshop as the subject was still under discussion. The provision made in the estimate for land was also somewhat vague. No final provision had been taken as regards the site for the terminal station. The estimate which is included in the papers laid this afternoon amounts, as you will see, to \$11,004,128. This includes workshops and all items, but it is still possible that the land resumption may not be adequately provided for as all matters in connection with that subject are not yet finally concluded. The excesses of this estimate over the one which was laid before the Council in December last amount to \$1,143,845, but if you will turn to column E, on page ten of the report, you will see that of this total sum \$996,409 represented the cost of the tunnels. \$120,000 of this excess is provided for workshops and there remains a balance of \$27,436 which is distributed over various items. But you will see also in the later estimates that there is a great variation of the figures from those contained in the estimate of last year. There is a saving of \$82,500 for rolling stock, and \$51,700 in ballast and permanent way, making a total of \$134,000 saving on these two items. This is met by excess of \$90,000 on salaries and \$43,000 on accounts, making \$153,000. Bridges show an excess of \$47,261; half of that is met by savings on various items; and the other half goes to swell complete the total excess in the estimate of \$1,143,845. These large over and under estimates are most unsatisfactory, and they show that the figures which have been supplied have not been reliable. But at the same time I would remind you that the mere question of estimates does not mean a reflection on British engineering.

It is partly due to the fact that we are engaged in constructing a tunnel such as has not been undertaken in this part of the world before, and under which the conditions both as regards labor and as regards explosives were extremely difficult to foresee. The variations also under the estimates are in part due to the fact that all the data of the railway were not known, and indeed are not known fully yet. Even had the railway been in the hands of contractors there would have been many items excluded for which supplementary estimates would have been required. Nevertheless, we have this fact that this tunnel will cost nearly a million more than the estimate given to us at the end of last year, and that in spite of the fact that the engineers had acquired already a year's experience in dealing with conditions under which the tunnel had to be constructed. During the year that is passed the quality of the labor has greatly improved. The coolies have been more efficient, and understand the work better. We have been able to engage a number of coolies returned from South Africa who have been trained miners, and have been a great acquisition to work in the tunnels. There has been less sickness and fever. The tunnel has been found to be approximately 44 feet less in length than it had been anticipated, owing to an error in the original triangulation. These causes have receded the cost per foot in a remarkable way. You will see on page 2 a very striking statement in this connection. The heading cost per foot in 1907, \$184, which has been reduced to \$70.04. The enlarging in 1907 costs \$275 which has been reduced to \$140.86; the brick-laying in was \$221 and has been reduced to \$113.54. Now, were it not for these very large reductions per lineal foot the excesses would have been something I dread to calculate. Obviously, it is beyond my personal control whether or not the estimate formed by the engineers is adequate. The staff which has been employed has been reduced wherever it has been possible to do so without detriment to the efficiency of the work. The medical arrangements which are practically carried out by Government have increased in efficiency. Everything in fact that the Government has been able to do has been done. The cost of the tunnel—I speak of the big tunnel only; you will of course recollect that sum includes the smaller one as well as the large one—is estimated as you will see in the report at \$3,000,000. Its length is 7,212 feet, which works out at \$416 a foot; that is to say \$2,196,342 a mile or in round figures about £200,000 a mile. If we add to that the cost of permanent way and the share of the tunnel's length in the general charges of the railway, you will see that the cost of the tunnel is not less than one-third of the total cost of the railway. As regards the special difficulties which have been met with, and which are held accountable for this large increase, I refer you to the report, in which you will see what the chief resident engineer has to say on the subject. The excess over the estimate in December, 1907, is in part due to the fact that we are completely lining the tunnel throughout. It had been hoped that in certain sections where the rock is exceedingly hard, lining might have dispensed with, but on Mr. A. J. Barry's late visit it was decided to line it throughout, but with a reduced number of rings of brickwork in those sections that were hard. Because the stratum was full of faults it was feared that the vibration of the train would bring the rock down on top of passing trains. Of the other tunnels the only one which has given any difficulty and on which any extra cost has been incurred is the Taipo tunnel, where heavy landslips were experienced owing to the slushy clay which formed the hillside. This necessitated very elaborate timbering at great cost. Its length is 924 feet, of which 573 feet had been driven, and 158½ feet lined on 31st December last. The other excesses to which I specially alluded, \$90,000 salaries. \$43,000 accounts include the cost of the salary for a portion of the year of an expert whom we hope to obtain from India to organize the work of opening the line and advise us on several subjects, including negotiations for the joint working agreement with the Canton Section. The loss on exchange is largely responsible for the ex-





KOWLOON-CANTON RAILWAY.—BRITISH LOCOMOTIVE AND DUMP CARS



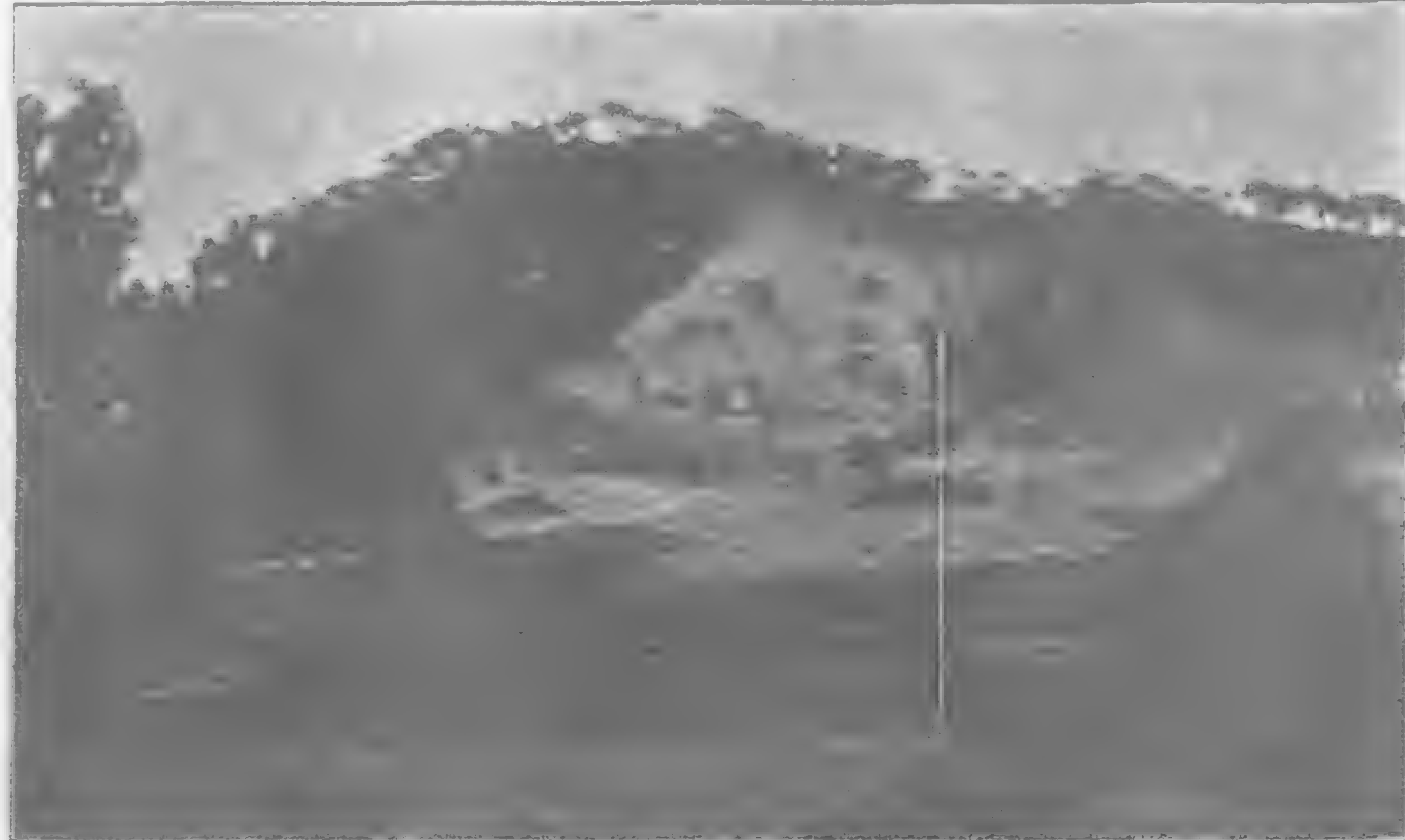
SHORT TUNNEL NEAR KOWLOON

KOWLOON-CANTON RAILWAY  
A TUNNEL ENTRANCE

SHORT TUNNEL NEAR KOWLOON



CAISSON WORK AT LO-FU FERRY



AT WORK ON A BIG CUTTING

cess in these two items. Prior to 1908 no staff had been provided for accounting. Such accounting work as had required to be done had been done by the chief resident engineer and his staff. The third excess of which I spoke, \$47,261 for bridges, arises in part from the increased size of Gascoigne Road bridge, which is due to the fact that it crosses the junction of two roads instead of crossing one of them at right

angles. This increased cost is not shown in the 1907 estimates, because it was not at that time known what the cost of the iron work in England would be. The cost of the construction of this bridge has been let by contract to Messrs. Leigh and Orange as part of the agreement to which I will shortly allude. Under this head of bridges also a final decision has been taken regarding the bridge over the Taipo

river, which has been a subject of much discussion, and it was finally settled by Mr. Barry. The situation in which it has been placed involves well foundations in the Taipo river, at considerably more cost than anticipated originally. It has been raised higher, owing to information which we received from the engineer of the Chinese section as regards flood levels in the Samchun valley and it has also been made with





KOWLOON-CANTON RAILWAY.—STEEL GIRDER BRIDGE WITH BRICK PIERS

double girders for a double line. Council will desire to know whether I have any information to add to my reply of September last to a question asked me by the member who then represented the Chamber of Commerce in this Council as regards certain defective bridges. I said in reply that I had directed that an examination of the bridges in question should be held by the Director of Public Works and Mr. Williams, the engineer of the Naval Docks. Their report, together with the comments of the chief resident engineer, was forwarded to the consulting engineers and so far I have had no reply from them. The result was that Mr. A. J. Barry, who already contemplated a visit to the Far East, was directed to inspect the Kowloon-Canton Railway on behalf of Messrs. Wolfe, Barry and Co., and to report to them. His report has no doubt by this time reached them, and I await their authoritative letter before I can make any official statement to Council. But I am aware of the conclusions at which he arrived. Briefly, I can say he agreed with the eminent engineers who reported to me on that question; that he adversely criticized the principles on which one or more of the bridges had been constructed. The matter is a highly technical one, and according to the memorandum issued by the Colonial Office, technical responsibility for work undertaken by the consulting engineers rests upon them. Direct intervention by the Colonial Government is only justified in case of urgent necessity. If the Government believes the quality of the work to be unsatisfactory it will be beneficial for it to intervene. In my judgment such an occasion had arisen. Under the system upon which

this railway is being constructed the consulting engineers are responsible for the conception and execution of the design in accordance with the intentions of the Government, and further responsible that the estimates are adhered to. The chief resident engineer is the nominee of the consulting engineers. He is responsible to them for the technical conduct of the work. I do not disguise from you that I have a misgiving that there will be some addition to the estimates before us in consequence of these defective bridges, but I trust and hope, with good cause, that the addition will not be a large one. You will see for yourselves what the chief resident engineer says on the subject in his report on page 4. I have dealt in considerable detail now with the items that involve excesses in the estimates. There remain those under which large savings are shown. Ballast and permanent way show an estimated saving of \$51,700; rolling stock, \$82,400. As regards the former you will find on page 5 a full explanation of the over estimate by the chief resident engineer, to which I have nothing to add. As regards the overestimate of the rolling stock, it is partly due to a decrease in home prices, and partly to the fact that less rolling stock than anticipated has been ordered. On Mr. Barry's advice the original order was somewhat reduced. The rolling stock is calculated to last till the end of 1911, but the resident engineer informs me that when the line is opened it will be insufficient, and will have to be augmented. We cannot, however, say exactly what quantity of rolling stock we shall require until the working agreement has been negotiated with the Chinese. I may add too, that the carriages

will cost something less than half what had been estimated, for the amount placed on the estimates had been calculated on the basis of carriages for the Shanghai railway, and we find by adopting a less expensive model we can reduce the cost from about \$2,000 per carriage to \$1,900. As regards earthwork, under the estimate at the end of 1907, the chief resident engineer already anticipated a saving of over \$140,504 on the estimate made in the previous June. Out of this saving, \$35,000 will be allocated to a reduction of the bank in the big cutting at the head of Hunghom Bay. This cutting is about 210 feet deep, and the engineers consider that looking to the very pliable nature of the ground it is unsafe to allow the slip to stand without some further precautions to avoid landslips which may block the line for a period of several months. \$110,000 is devoted to the prolongation of the sea wall from the storm water drain to Blackhead's Point. This had long been decided upon but was not included in the December estimates because no definite decision had been arrived at as to its exact location. It had originally been intended to make the wall in straight line to Blackhead's, but it was set back in order to effect a substantial saving by constructing the wall in shallower water. \$40,000 are also required, which I hope will be met from the saving in earthwork, for cutting off the corner on Signal Hill, in order that the railway might obtain a proper curve in approaching Kowloon Station. I turn now to the more pleasant task of reporting the progress which has been made upon the railway during the past year. I think we can describe it as satisfactory on the whole with the exception,



VIEW FROM ABOVE S. PORTAL OF NO. 3 TUNNEL



VIEW FROM TOP OF NO. 67 CUTTING WHICH IS BEING EXCAVATED IN 3 LIFTS, WITH 2 FT. LIGHT RAILWAY



GIRDER BRIDGE



perhaps, of the big cutting at Hunghom and the reclamation for the station yard which are let to contract to Messrs. Leigh and Orange. As there was a prospect that the time for this would be much exceeded, we entered into negotiations with them in order to obtain the use of what is called the 'overland route' construction line which they have made and also in obtaining access to certain areas under reclamation in advance of the completion of the contract. By obtaining running powers over the construction line, we shall facilitate the opening of the railway at a very much earlier date than would otherwise have been possible. In return we have allowed them twelve months' extension of the time for the big cutting which, as I have said, will not delay the opening of the railway. It will be opened over the overland route and they have consented that the penalties for exceeding the contract time shall be trebled. We have also given them two new contracts at rates which will be remunerative to them, viz. the Gascoigne Road bridge and the other in the neighbourhood of Yaumati Station. It will be possible to open the line before the big reclamations are completed. The tunnel progress has been good. On 31st December, 1907, 3,100 feet had been driven and 465 feet had been lined, and on 31st December last, 5,644 feet had been driven and 2,730 feet lined. The progress in 1907 was 40.27 feet per week. Last year it was 68.15, an increase of some 60 per cent. in spite of the fact that during the



KOWLOON-CANTON RAILWAY.—TAKING THE TOP LIFT OFF THE CENTER OF CUTTING NO. 1. FORMATION LEVEL IS ABOUT 30 FEET BELOW THE RAILS



KOWLOON-CANTON RAILWAY.—CONCRETE BRIDGE, CUT STONE FACING



KOWLOON-CANTON RAILWAY.—CONSTRUCTION TRAIN

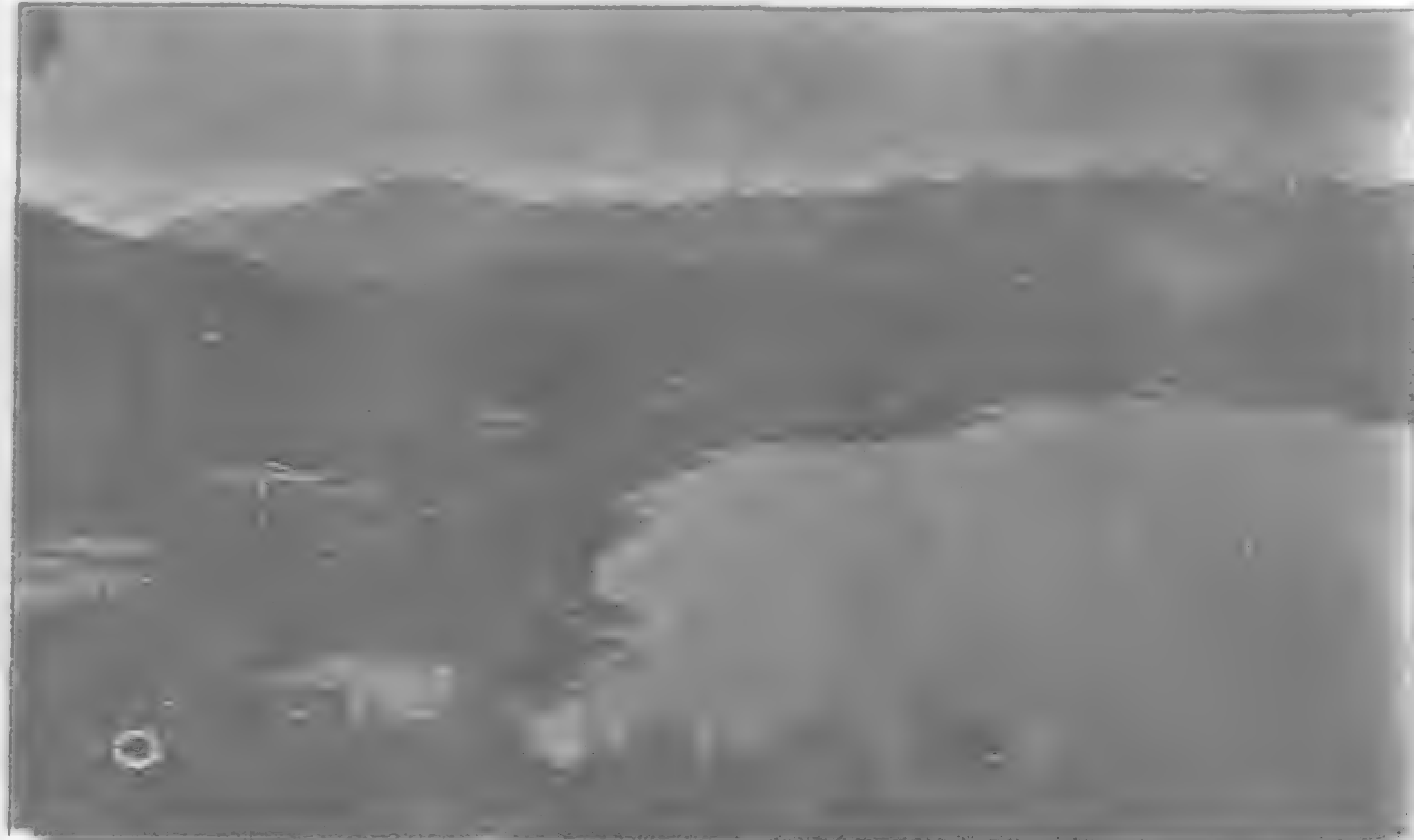
great part of 1907 we were working on four faces whereas in 1908 we were only working on two. I have already told you how greatly the cost per foot has been decreased and how the progress has been much more rapid. We hope the headings will meet within the next two or three days. For this work very great credit is due to Mr. Waite, the tunnel superintendent. We hope the tunnel will be lined and finished by the end of the year and that the permanent way will be laid and the line opened over the 'overland route' by May, 1910. We found it advisable to have a small flag station at Taipo market in order to attract some additional traffic, and a small station will also be built at Lo-fu ferry

near the frontier. None of these items were included in the original estimates. I may also say that the jetty at Taipo will be lengthened so as to carry it into deep water, and by this we hope to acquire considerably more traffic from across the bay. The cost of these three items is small and will be met, without increasing the estimates, by abolishing high platforms at the small intermediate stations which are not considered necessary. After much discussion with Mr. Barry when he was here, it was decided that the small workshops which would be necessary should be placed on Crown land at the head of Hunghom Bay. It is considered that the building and plant will

not cost more than \$120,000, which is now included in the estimates. After much discussion it was also decided to locate the terminal station of land near Salisbury Road, where it would be near the various piers where passengers and baggage would be landed, and more central. It would leave the deep water anchorage free for ocean going steamers. This will involve some land resumption which I think well worth doing in order to acquire the advantages which I have just named. It is not possible to say what the cost of these resumptions will be because it will involve a considerable amount of adjustment between the Colonial Government and the railway accounts. The report of the

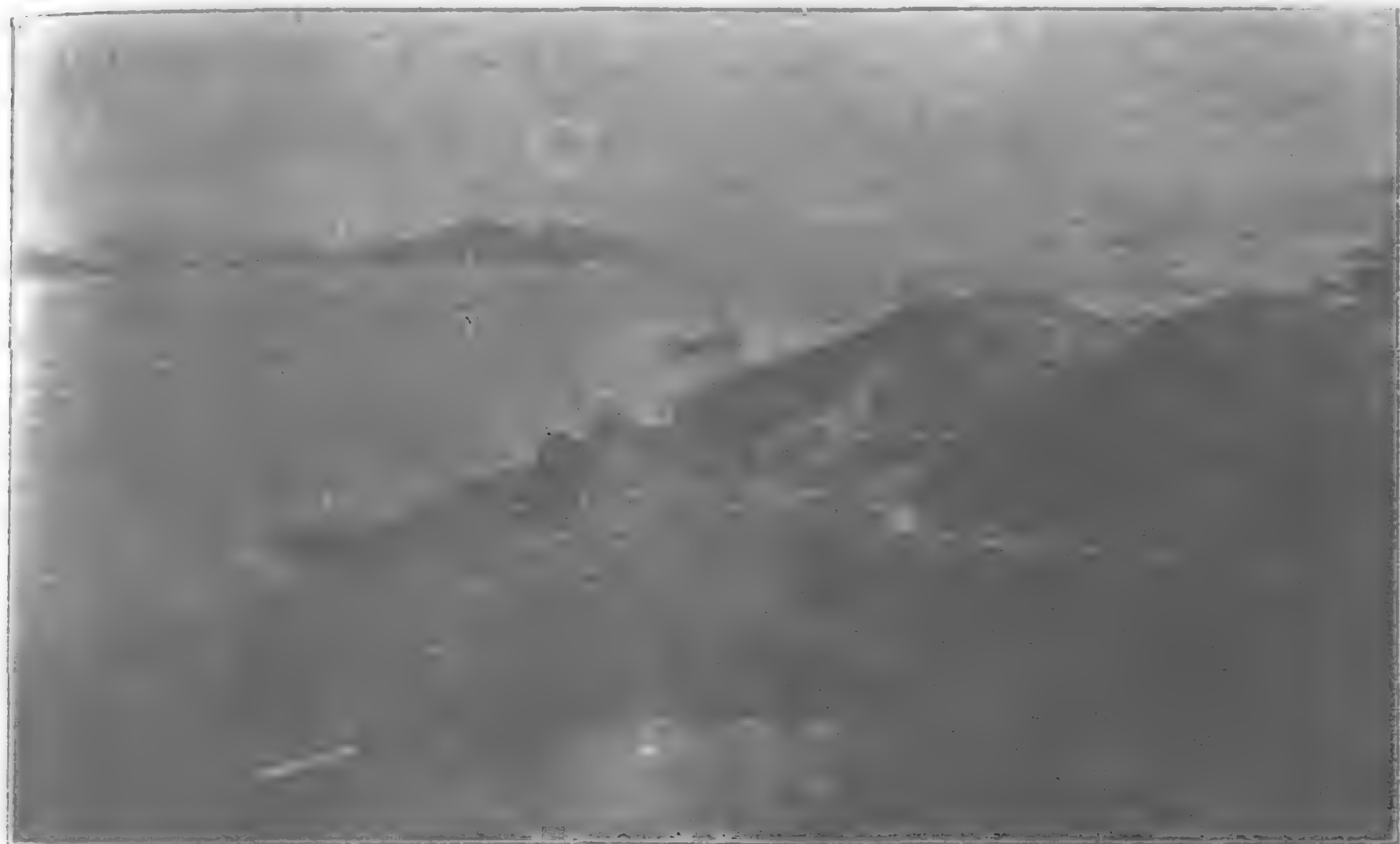


KOWLOON-CANTON RAILWAY.—LAND FILL AT TAIPO

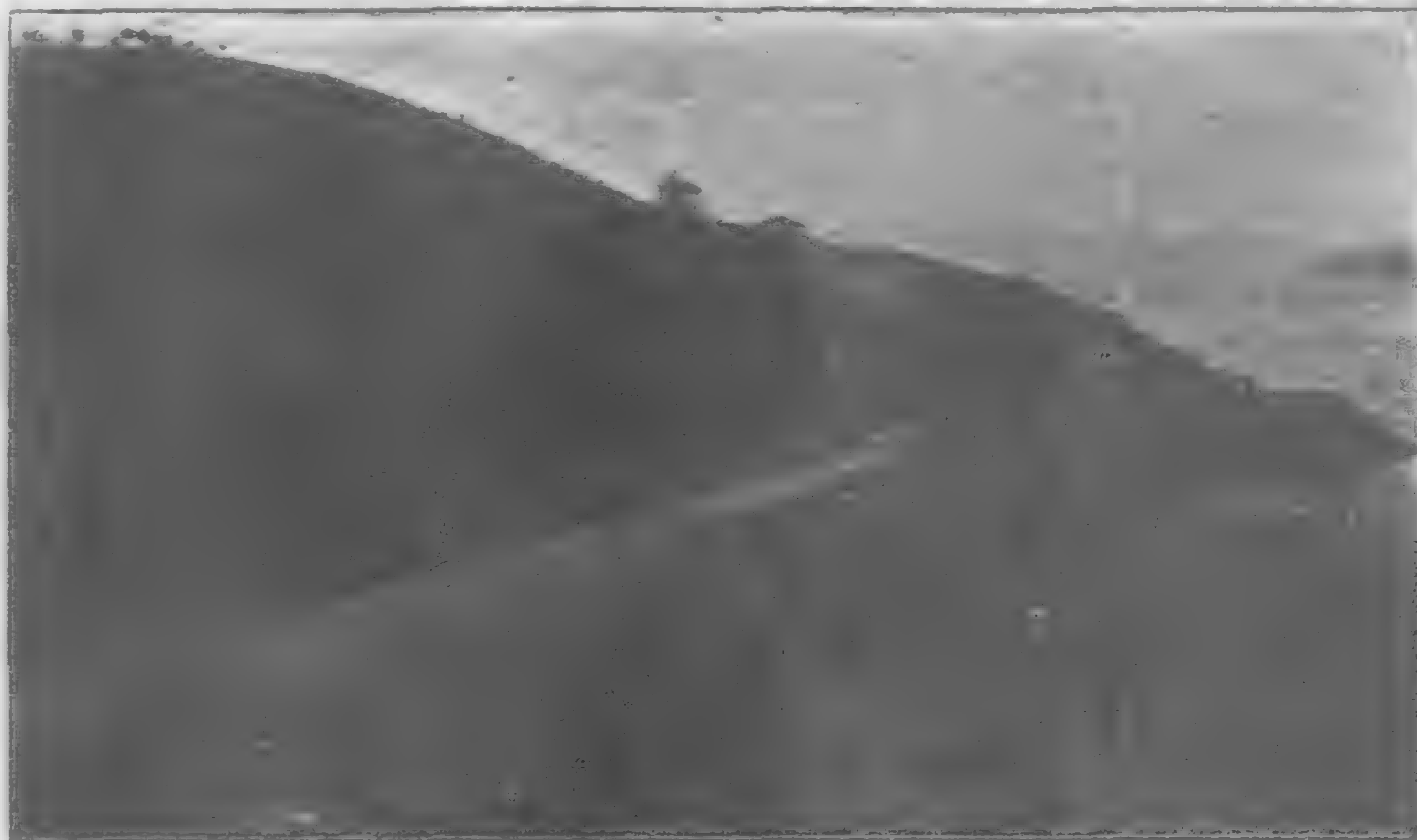


KOWLOON-CANTON RAILWAY.—TAIPO CITY





KOWLOON-CANTON RAILWAY.—CUT NEAR TAIPO



KOWLOON-CANTON RAILWAY.—SEASIDE EMBANKMENT AND CUTTING NEAR TAIPO



KOWLOON-CANTON RAILWAY.—CONSTRUCTION CAR



KOWLOON-CANTON RAILWAY.—HAULING BRICK BY OX CARTS



KOWLOON-CANTON RAILWAY.—COOLIE PUSHING CAR

medical officer is very satisfactory. Beri-beri, and dysentery at the tunnel have decreased by 50 per cent. This is due to better organization and to better methods. The number of coolies employed on the railway throughout the year per day was 3,244. Both sections—our section and the Chinese section, are now well advanced, and we hope before long to undertake negotiations for a joint working agreement. I think, gentlemen, that covers all points on which you are likely to feel interested in the work during the past year and the prospects in the future."

Following His Excellency's statement, there was much comment in the Hongkong press tending to intimate that mismanagement has been responsible for the doubling of the original estimates. In order to throw additional light on the subject and remove this impression the Hon. Murray Stewart, Chairman of the Committee of the China Association, addressed the following letter to the Editor of the *Hongkong Press*:

"SIR:—The Committee of the China Association conceive it to be in the public interest to endeavour to dissipate an erroneous impression that Hongkong is being called upon to pay for the Colonial section of the Kowloon-Canton Railway considerably more than the work is worth. The prevalence of this impression is indicated by certain Press comments upon His Excellency the Governor's speech in Council on the increased estimates. From the general tone of these it might almost be assumed that



KOWLOON CANTON RAILWAY.—CAISSON WORK FOR BRIDGE AT LO-FU FERRY

mismanagement had led to the doubling of the legitimate cost of construction.

"There appears to be a popular idea that the original estimate was for some 5 million dollars; that the work ought not to have cost much more; but that gradually, owing to a series of blunders, the figure has risen to 11 millions. This belief that the cost has been doubled by mismanagement has naturally led to severe criticism being directed against those responsible for the undertaking. I venture to submit that it is not borne out by the full circumstances of the case.

"The first important fact to note is that the estimate of 5 million dollars was a mere rough estimate made by Mr. Bruce on his original survey. The line beyond Shatin, as planned by him, was a single line throughout, to run along the edge of the sea shore from Lokloha to Tai Po.

"The alignment which he proposed, and on which this rough estimate was based, had subsequently to be altered because the typhoon of September 1906 showed the shore edge to be unsafe. That typhoon was a revelation in many ways. It taught several lessons to others besides railway engineers, and there is no particular blame attaching to anyone for not having foreseen the possibilities of destruction reposing in the sheltered waters of Mirs Bay. If we can all now see that Mr. Bruce's original alignment was a mistake, we ought in fairness to remember it was at least excusable under the circumstances.



"The change in the alignment, removing the track out of reach of the sea, entailed much heavy cutting not contemplated by Mr. Bruce and the boring of three additional tunnels, of which that undertaken at Taipo is in itself a considerable enterprise. It is also important to remember that it was subsequently decided to build all bridge cuttings, and the three additional tunnels, wide enough to admit of a double track being laid, should the necessity for that hereafter arise. Mr. Bruce had not made provision for costly developments of this sort. It was not his business to do so. His business, as described by His Excellency the Governor in the Legislative Council on the 6th February, 1908, was 'to make a preliminary survey and to base upon it a preliminary estimate.' How rough an estimate it was may be gathered from His Excellency's comment upon it in the same speech, in relation to the cost of earthwork. He said 'it is difficult to know exactly what rates Mr. Bruce had calculated at, because no drawings or calculations of quantities rates were supplied with the estimate.' In justice to Mr. Bruce it should not be forgotten that the first and by far the most important duty which fell upon him was to decide upon the main route of the railway. At one time the Deep Bay route had been recommended. He had to determine which of three different routes should be adopted, and it stands to his credit that his decision on this vital point has been generally admitted to be sound.

"The first detailed and authoritative estimate made was that submitted by Mr. Eves in his report dated 4th February, 1908, and laid before the Legislative Council on the 22nd of the same month. If this estimate is compared with that made by Mr. Bruce, it will be seen that the increase is mainly due to five factors:

The estimates for land resumption was increased by.....	\$1,186,038
For earthwork by.....	729,003
For tunnels by.....	578,555
For bridges by.....	620,927
While the expenditure on Plant, Rolling Stock, Salaries (for which Mr. Bruce had made no estimate at all) was estimated by Mr. Eves at.....	1,191,647
Total.....	\$4,306,170

"The reasons for the increase in these items have already been alluded to, with the exception of that due to land resumptions in Kowloon, incidental to new and larger ideas of what will be required the terminus. Over and above this there remains an increase of roundly \$500,000—accounted for by increases under the other sub-heads.

"With regard to the difference between Mr. Eves' estimate, dated 4th February, 1908, and his estimate dated the 9th March last, and laid before the Legislative Council at its last meeting, the excess of the latter over the former is just under \$1,150,000. Of this nearly \$1,000,000 is due to increased expenditure on Beacon Hill Tunnel. The net increase on the remaining items, as compared with Mr. Eves' first estimate is just under \$150,000—not a very formidable sum. One reason for the increased cost of Beacon Hill tunnel is to be found in the varied character of the excavation, and another in the phenomenal hardness of the rock met with in parts of the hill, necessitating the use of specially heavy drills, and an enormously increased use of explosives.

"The fact that the estimates have been exceeded a common experience in all such undertakings should not be interpreted to mean that the work could have been executed for less. Unless this can be proved there is no justification for thinking that the Colony has so far suffered any loss except on paper.

"The members of my Committee have no valid reason to suppose that the cost of the actual work done is excessive, and, this being so, they protest against the advocacy of the belief that there has been 'gross mismanagement' in the construction of the British section of the Kowloon-Canton Railway."

On May 17, 1909, three days after the Governor's speech, the famous Beacon Hill tunnel was pierced, a triumph to British engineering

and representing 28 months work against almost insurmountable obstacles.

The prospect is that the British Section of the Canton-Kowloon Railway will be completed by May, 1910, if not before that date. In discussing the 1910 budget, October 8th, His Excellency reported the completion of the lining,

## THE CANTON-KOWLOON RAILWAY (THE CHINESE SECTION.)

The following report on the progress of the work on this line, prepared by Mr. Frank Grove, the Chief Engineer, was submitted in April of this year. Beyond this report there is little further to add, as progress has been slow, owing to the difficulty of securing rights of way. The surveying engineers have been repeatedly driven off, as the natives do not take kindly to the idea of the line through their fields, and disturbing the "Fengshui." Work is now practically at a standstill.

"The final agreement between the Chinese Government and the British and Chinese Corporation, who are building the railway, was signed on March 7, 1907.

"His Excellency Wei Han, being appointed managing director, facilities were afforded for the commencement, at the end of August, 1907, of a detailed survey and of the actual location of the line. Provisional arrangements had already been made by the British and Chinese Corporation, at the request of the Chinese authorities and the engineer-in-chief, for an adequate foreign staff; and from August 25, 1907, fully equipped survey parties were at work, the head office, temporarily established at Shameen, being under the direction of the managing director, the engineer-in-chief, and the chief accountant, under terms of the Loan Agreement.

"THE CANTON TERMINAL.—The Canton terminal has been established at Taishatow and is thus conveniently situated at the end of a roadway which will eventually pass throughout the entire length of the water frontage of Canton, east of Shameen. A considerable area of land has been acquired at Tungshan, rather more than one mile from Taishatow for the provision of permanent residences for the foreign and Chinese staff, and also for sheds and workshops. The terminal station at Taishatow will be a double-storeyed building providing full accommodation for the permanent general office. There will also be sufficient sidings and store sheds to deal with freight.

"A connexion with the Yueh-Han Railway will be made to the northward of the city. No difficulties will be encountered in the construction of this connecting link.

"The total length of the line from Taishatow to Samchun (on the frontier of the British leased territory) is 89 miles, considerably less than was anticipated at the time of a reconnaissance survey made some ten years ago. Allowing 22 miles for the British section, the total length thus becomes 111 miles from Canton to Kowloon.

etc., of the big tunnel to the length of 4,935 feet and at the rate at which the work was proceeding he expected its completion about that time. This will be the signal for the opening of the railway to traffic. In the meantime the Chinese section will have been completed for over 30 miles from Canton.

"The heaviest bridging occurs at the crossing of the East River Valley, and for some ten miles or more rails are carried at an average level of some 16 ft. above the level of the rice land. In a length of eight miles they had a total girder opening of some 3,000 feet, and during highest flood times the country became a huge lake with a depth of water averaging ten feet or more. Some heavy earthwork is encountered in the portion between Shekma and Samchun. Generally speaking, there are works of considerable magnitude in a large portion of the line, the proportion of major bridges being large for so short a railway.

"The route adopted offers every prospect of considerable traffic. From Canton to Sheklung there are many large villages, especially on the northern bank of the river, and the railway will provide, with its numerous stations and 'halts,' ready access to the Canton and Hongkong markets. A large quantity of lichees, sugar cane, oranges, and other fruits are grown annually in this district, which may be described as richly cultivated and prosperous. The commanding position of Sheklung on the East River and its trade as a distributing centre are well-known. The station and goods yard will be near the town, and considerable passenger and freight traffic is assured.

"South of Sheklung to Samchun a direct route has been obtained through a fine country, mountainous in many places, rather thinly populated, but fertile and capable of considerable development. The lower hills are inhabited by Hakkas, and large quantities of fruit, especially pineapples, and vegetables find their way from this district into the Canton and Hongkong markets.

"The survey was sufficiently far advanced for land purchasing operation to commence at one or two points of the line in December, 1907, and further sections of land plans were deposited in March, 1908. Land officers, however, found many difficulties to contend with, and it was not until July that considerable lengths of land were made over. Construction proper dated from July, 1908, though certain small sections of land were entered upon before that month. During succeeding months, land purchase made better progress, though the rapid extension of works was delayed, the present condition being that out of a total length of 89 miles about 50 miles are purchased and entered upon.

"In regard to this delay, it must be remembered that the rapid acquisition of large areas of land in the Kwangtung province presents a difficult task to Chinese officials, and care has



KOWLOON-CANTON RAILWAY.—BUILDING PIERS FOR BRIDGE NO. 33



to be taken to avoid serious disturbances, especially in dealing with the removal of graves, tombs, and temples. With the exception of some comparatively trivial affairs, it is a matter for congratulation that land purchase has proceeded to the extent indicated without great friction between officials and inhabitants, who are notorious in many districts for their exceptionally truculent and determined natures, and that the safety of foreign engineers under trying conditions has not caused greater anxiety.

"The construction of earthworks is at present proceeding over, or will shortly proceed over, the extent of land purchased, and fair progress is maintained. Bridge work is well in hand over considerable lengths. The works of the most importance and likely to entail the greatest delay to a through connexion are the large bridges at the crossing of the East River Valley. A satisfactory start is being made on foundation work, and there is no reason to anticipate greater delay in the opening of the line for through traffic than the nature of the work

to clinch matters with the Waiwupu. Long negotiations followed, and, as mentioned above, the document that gave life to the agreement concluded in principle in 1898 was not signed until 1907.

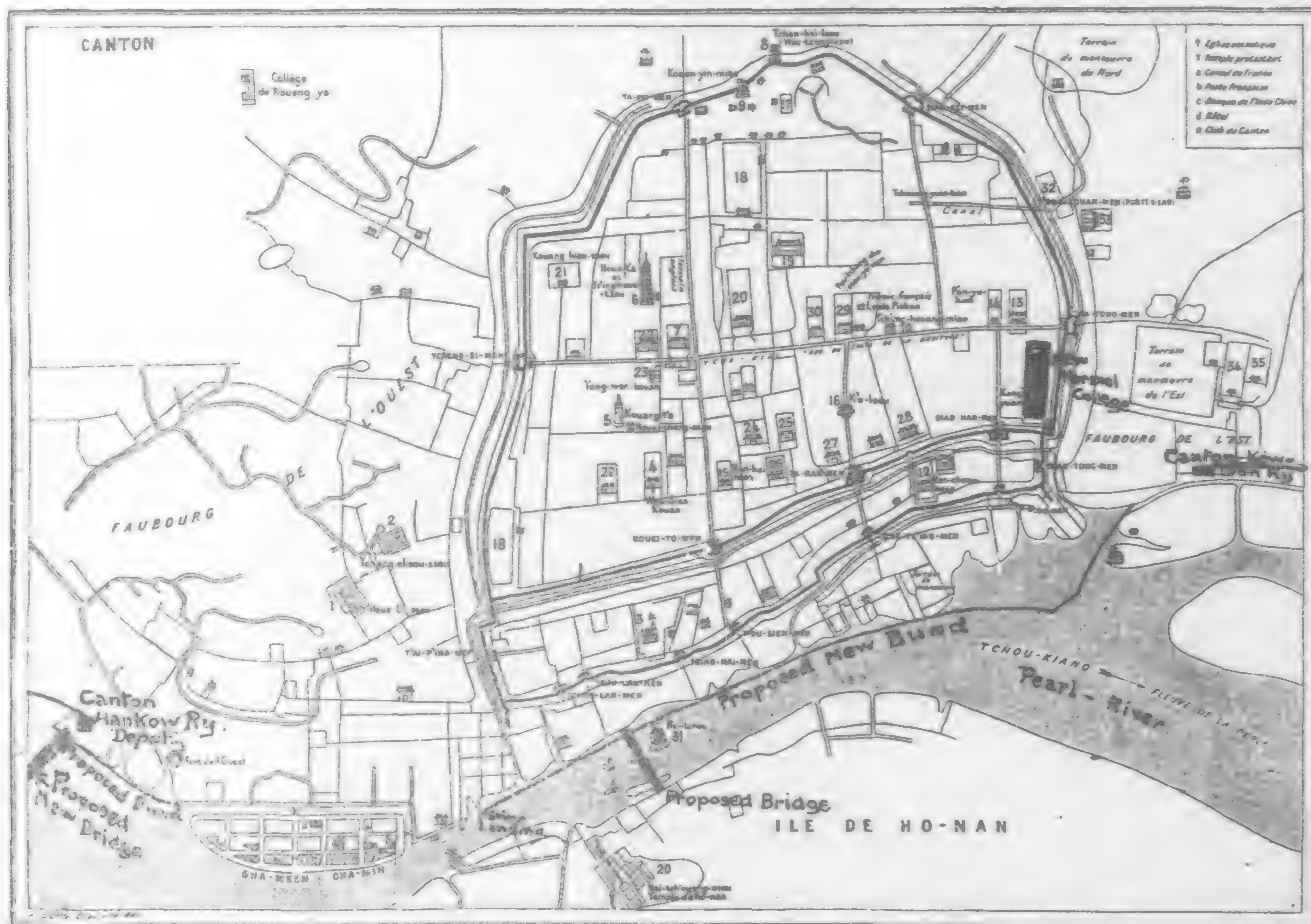
"The general financial terms under which the railway is being constructed are similar to those stipulated for the Shanghai-Nanking Railway. They provide for the issue of a sterling loan of £1,500,000, bearing interest at 5 per cent. The loan is guaranteed by the Chinese Government, and secured on the railway to be built. The administration of the railway is vested in 'a Chinese managing director (appointed by the Viceroy), with whom are associated a British engineer-in-chief and a British chief accountant.'

"The depot will be at Tung Shang, a mile away from the terminus and the main station. At Shekwaitong the line will connect with the Hankow railway. There will be three lines from the No. 1 bridge—a main line and two sidings. The platform itself will be 800 ft. long by 30 ft. wide.

maintenance engineer, a general drawing and drafting room, together with a large light area for the staircase of iron in the centre. On the second floor is a big dining room, mess room, kitchens, printing and drawing room for plans, wash rooms for the printing, etc., with a promenade outside. The whole building is covered with a flat concrete roof of re-enforced malthoid.

The building is severely plain so as to be in keeping with most railway structures, and will be relieved with Doric columns. The fittings throughout are of teak wood, with plate glass windows. The hardware necessary will be imported.

A great feature of the place is the small curtain walls of re-enforced concrete, which thus economise space. The building will have its own water supply and electric light installation, with arc lamps on the platform. Messrs. Purnell and Paget are the architects, and Hop Woo are the contractors. The foundations—which are of re-enforced cement concrete on piles—were started in January, 1909, and it



MAP OF CANTON SHOWING RAILWAY TERMINUS

naturally involves. The rate of construction of the heavy earthworks and culverts on part of the line south of Shek-lung, where water transport facilities are absent, is necessarily not so fast as it would be in an open and easily approached country-side.

"A careful estimate anticipates the opening to traffic of a 30 miles' section from Canton outwards in March, 1910, and a through connexion with Kowloon on or about July 1, 1911.

"British merchants in Hongkong and in Southern China generally will then have the satisfaction of seeing consummated a scheme long and ardently advocated. As far back as 1898 the necessary concession was obtained, together with four other railway concessions, from the Chinese Government by Sir Claude MacDonald, just after the Belgian syndicate were given leave to build the Peking-Hankow line. But the project hung fire. It was only after the construction of the Kowloon part of the line under purely British auspices was well under way that the British and Chinese Corporation, to whom the concession had been made, tried

"The station building—the foundation stone of which was laid by H. E. the Viceroy—is of reinforced cement concrete, with brick facings. The walls, floors, columns, roofs, and partitions are all of reinforced concrete with Green Island Cement. The size of the building is about 170 ft. by 60 ft. and will be of three storeys.

"The ground floor contains the main entrance, about 60 ft. by 40 ft., leading directly on to the platform. Here there will be the booking, telegraph, traffic, and station master's offices, together with the necessary railways and enclosures for the different classes of passengers. There are the mandarin waiting rooms, refreshment rooms, traffic and accounts department, traffic manager's office, ladies' waiting room, a large parcels' office—40 by 20 ft. and the usual lavatory accommodation. There will be re-enforced concrete stairs on either side of the building leading to the first floor, on which are the managing director's and secretary's offices, as well as for their clerks, the accountant and assistant accountant's department, offices for the manager and engineer in chief, the

is hoped to finish by contract time in March, 1910.

"The whole of the floor will be covered with Chinese and imported English tiles, and, we need hardly say, the building will be fire-proof. It is worthy of note also that the bricks are of a new kind, being Kwangtung bricks, of local manufacture. They have a nice glaze, have stood a severe test, and supply a long felt want in building construction in Canton and the neighborhood. They are made by the Chinese Government, on the Honam side, under the superintendence of Taotai Lu. The cost of the Amoy bricks—which up to now have been in demand—made building very costly, as the freight was no mean figure. Now that a good local brick is in the market, it is felt that not only will satisfaction be guaranteed but an incentive may be given to building construction and therefore to the extension of a local industry.

"On the recommendation of the Chief Engineer the contract for all the rails for this line has been placed with the Hanyang Iron & Steel Works."







# SAN MAURICIO MINES

One of the most important undertakings in Philippine quartz mining has just reached the stage of assured success. This is the operation of the "San Mauricio" mine located at Mambulao in the Province of Ambos Camarines on the Pacific coast of the Island of Luzon. Here there is a fine deep-water harbor in which large vessels can anchor within a quarter of a mile of the shore. The mine shaft is two-thirds of a mile from tide-water. The properties have an area of about 270 acres.

A twenty-stamp mill from the Traylor Manufacturing Company is practically completed and will be running in the early part of the coming year. It is the largest crushing plant in the Philippine Islands. The method of handling the ore and the extraction of values is of particular interest. After the ore is broken down into chutes, it is run into cars and trammed to the shaft which is equipped with a sixty-five horse-power hoist of the Lidgerwood type. It is then hoisted to the surface and trammed from there to the grizzly and crusher floor of the mill building, the "fines" going through the grizzly and the "oversize" going to the crusher where they are reduced to an inch and a half ring. From this point all the ore is handled by gravity. After leaving the crusher it enters the bin which has a capacity of 150 tons. From the bin it is introduced to automatic feeders that feed the ore to the stamps, of which there are four batteries of five each with a weight of 1,050 lbs. per stamp. It is there crushed so that it will pass through a 30-mesh screen. Before the ore leaves the batteries a certain amount of the free values are amalgamated inside of the batteries. The rest of the free gold is caught on the copper plates in front of the screen. The pulp from the copper plates is run into launders which carry it to the classifier, where the pulp is classified into three different sizes and distributed from there by launders to the six Traylor concentrating tables on the first concentrating floor. The "middlings" from these six tables are conducted to the lower concentrating floor which contains two tables and are re-concentrated there. The sands or tailings are then run off on to a dump and stacked there for future disposal.

The average value of the ore as reported upon by five engineers, H. W. L. Way, Carnegie Williams, E. Voigt, Charles Schneider and Washington B. Vanderlip, is one ounce and sixteen grains per ton. The cost of handling this ore, that is, mining, milling, concentrating,

shipping of concentrates, smelting charges and development work on the mine, should not be over five dollars per ton of ore handled. It is expected that the mill will crush about eighty tons per day.

The plant includes a well equipped assay office under a competent man who is devoting his time to work out a method of treatment whereby the values may be recovered without smelting. The superintendent in charge is Mr. D. E. Blake, an engineer well-known in the mining world, in whom the officers of the company place entire confidence.

*Philippine Exploration Company.*—The San Mauricio mine is controlled by the Philippine Exploration Company, incorporated in the United States in 1908. Its head office is at No. 97 Water Street, New York City, with a branch office at No. 32 Plaza Moraga, Manila.

The officers of the company are: Mr. F. H. Henry, President; Mr. James Cochran, Vice-President; Mr. Vivian L. Outerbridge, Secretary-Treasurer; Mr. A. Heise, General Manager. The other directors are Mr. Howard Gilbert and Mr. Halsey R. Carpenter.

The object of this company is to undertake the financing of promising mining properties, either quartz or placer. Its method of operation is to take over a property from the owners under a contract to develop it and, in case the development work should justify it, to install machinery.

When a completely equipped plant is at work, the Exploration Company turns it over along with the mines to an operating company organized to acquire and work them and retires from the active management of the property, but retains as its share a control of the stock of such operating company.

With the "San Mauricio" off its hands the Exploration Company is starting in to develop two other promising properties in the same district, one of which is placer and the other quartz.

*Batobalani Dredging Group.*—This property comprises 760 acres and is situated on the Malaguit River in the well-known Paracale mining district. It is about eight (8) miles distant from the San Mauricio mine. The lower end of the group is just at the head of tide-water at a distance of about six miles from the sea. Materials for the building of dredges can easily be lightered or floated to this point.

From 260 boring tests made on this ground the average per cubic yard of the dredgeable area is given as twenty-four cents, United

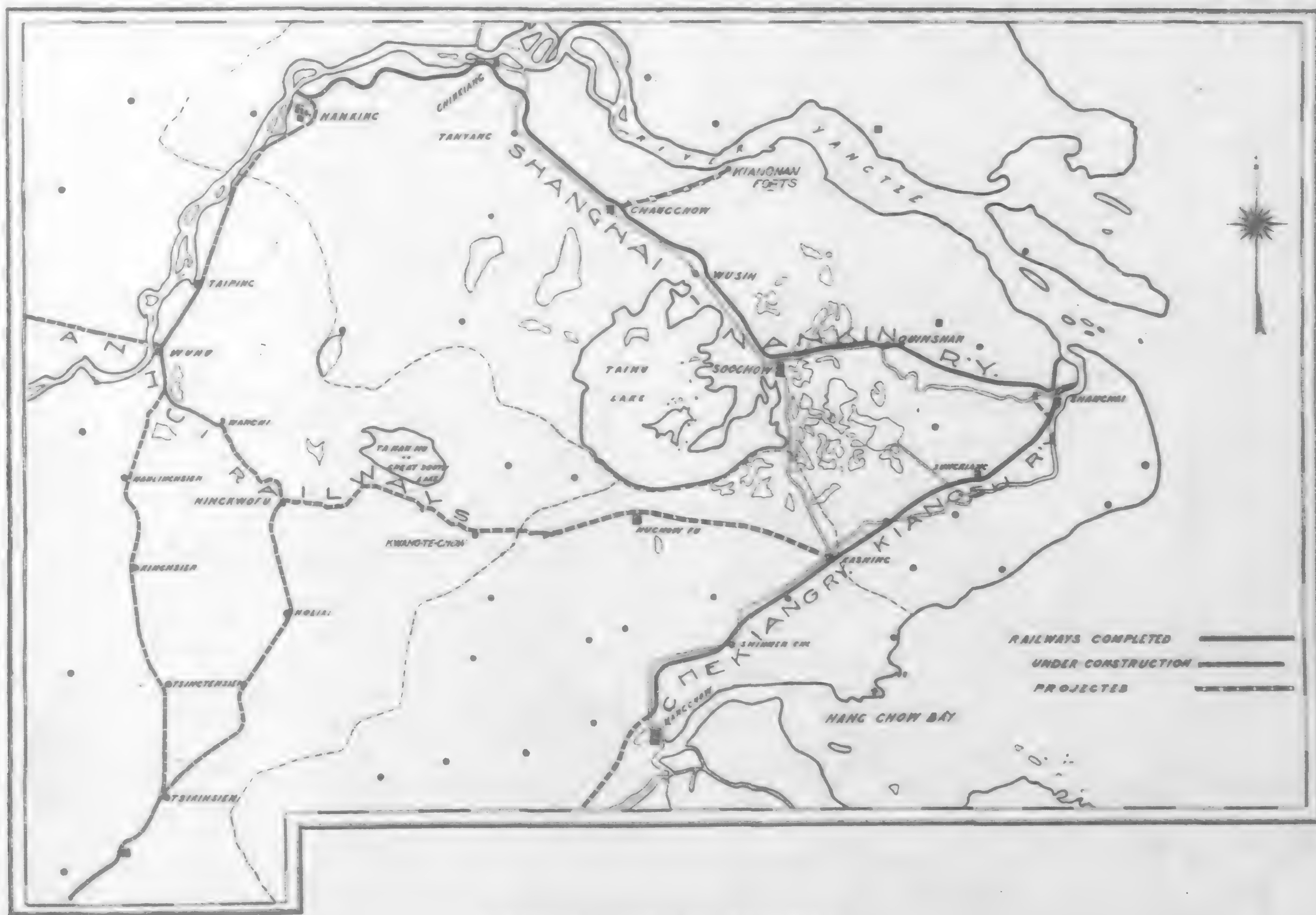
States currency. The tests were made with a hand boring machine and it is the consensus of opinion of most mining men that this apparatus will not save the values in the sample taken by one-third, which means that it would be safe to figure upwards of thirty cents per cubic yard. The aforementioned tests show the overburden to be handled to range from two to seven feet and the gravel or "wash" from thirteen to twenty-one feet. This fixes the maximum depth of the dredgeable ground at twenty-eight feet and the minimum depth at fifteen feet, which are ideal conditions for dredging. The entire area has not been proven up to date, but tests are being pushed as fast as possible and a dredge will be ordered in the near future. The Exploration Company has bonded this property for eighteen months.

*Robinson Group.*—The Robinson Group is a tract of about 850 acres of mineral-bearing ground which forms an ell around the San Mauricio Group, virtually making both properties one.

There have been numerous shafts sunk and adits driven by native miners in the past on the Robinson Group, the lines of old workings extending parallel from the Northeast to the Southwest all over the group. This property is now being surveyed and active development will start on the same at the beginning of the coming year. The Exploration Company has a three year working bond on this group, guaranteeing to spend a fixed sum monthly and at the end of the lease to install such machinery as the development work at that time justifies. This property has the making of some very large mines. It is as yet only in the "prospect" stage, but from all surface indications it will justify the expenditure of considerable time and money.

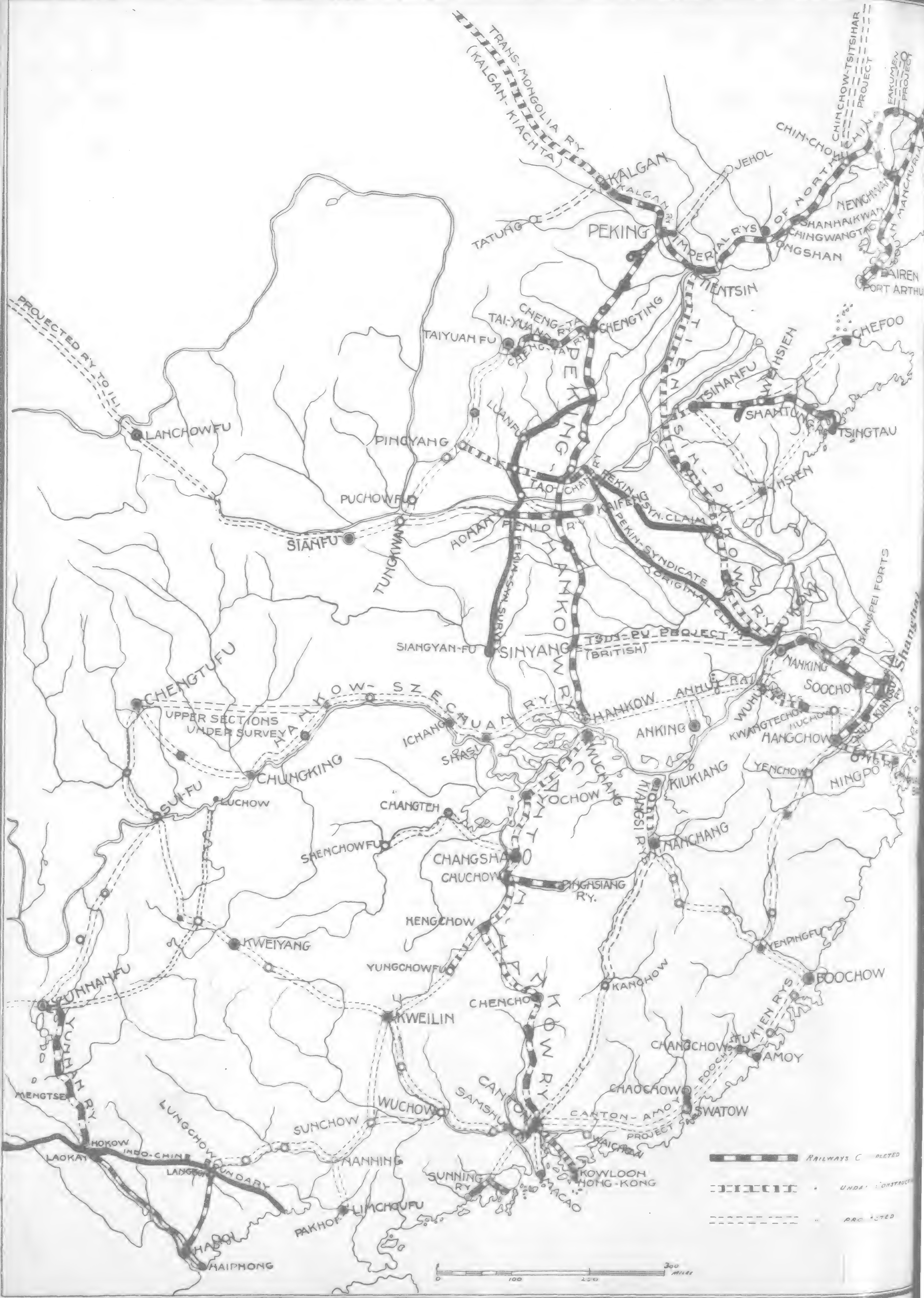
Mr. A. Heise, the general manager, and one of the directors of the company, sailed from Manila recently for Shanghai where great interest is being taken in Philippine mining development. While nothing has been given out as to his purpose there, it is believed that some of the leading Shanghai capitalists may become interested in the different promising enterprises of the Exploration Company. It is understood that all the necessary capital for the development of the properties referred to is available in New York but Mr. Heise, it is said, is anxious to interest local Far Eastern capital as much as possible in these ventures.

Mr. Heise has been the most successful and conservative promoter of Philippine mining, and there is little doubt but that Shanghai capitalists will be impressed with the opportunity and take a "look see" at these properties.



KIANGSU CHEKIANG RAILWAYS





————— Railways Completed  
- - - - - Under Construction  
..... Projected

0 100 200 300 Miles



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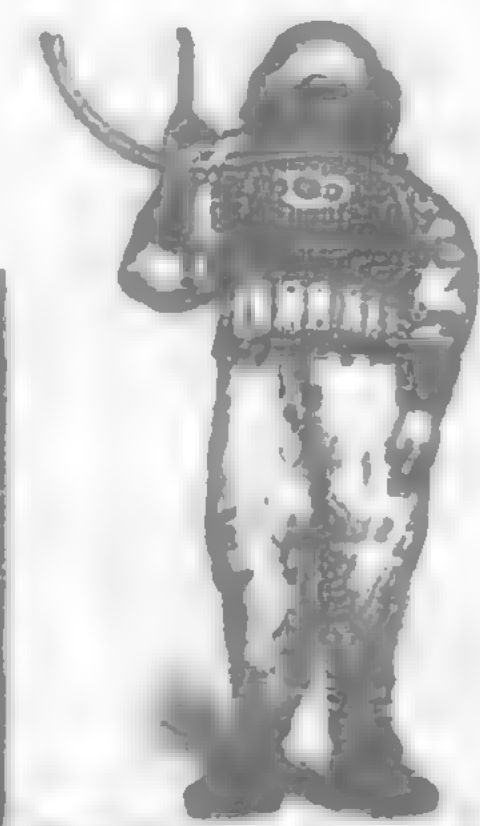
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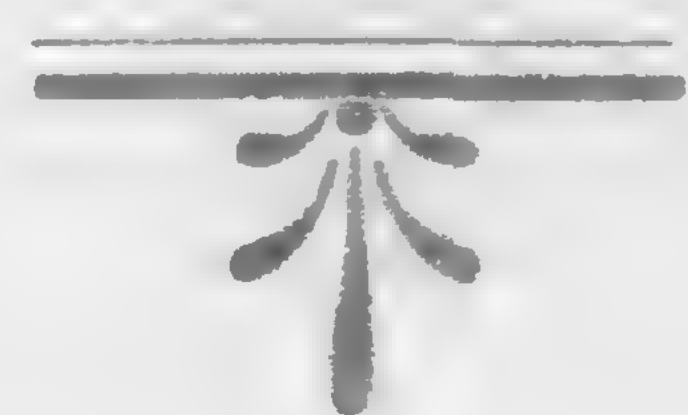
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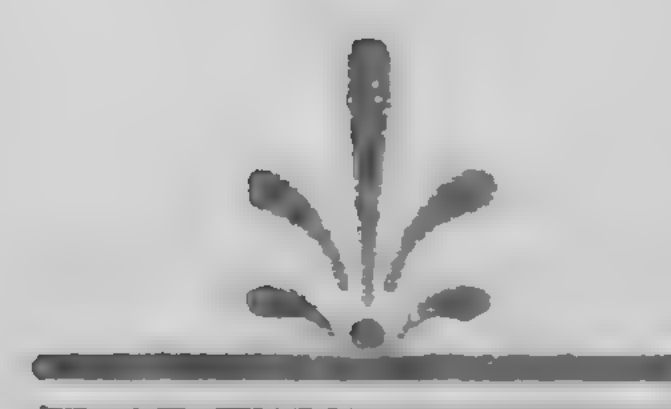
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SUPPLEMENT TO  
THE FAR EASTERN REVIEW



# China's Foreign Railway Agreements



NOVEMBER, 1909.



# GREAT BRITAIN

## FINAL AGREEMENT BETWEEN SHENG KUNG-PAO, DIRECTOR-GENERAL OF THE IMPERIAL CHINESE RAILWAY ADMINISTRATION, AND THE BRITISH AND CHINESE CORPORATION, LIMITED, FOR THE ACQUISITION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM SHANGHAI TO NANKING.

This Agreement is made the 15th day of the Intercalary month of the 29th year of Kwang-Hsu, corresponding to the 9th day of July, 1903, at Shanghai, and the Contracting Parties are:—

The Director-General of the Imperial Railway Administration, Sheng Kung-Pao (to be called hereafter Director-General), acting under authority of an Imperial Decree, of the one part, and Messrs. Jardine, Matheson & Company, and the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas, on the twenty-third day of the Intercalary third month of the twenty-fourth year of Kwang-Hsu, being the thirteenth day of May, 1898, a preliminary Agreement was signed at Shanghai between the Director-General of the Chinese Imperial Railway Administration, Sheng, acting under instructions from the Tsungli Yamen, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hong Kong and Shanghai Banking Corporation, representing as Joint Agents a British Syndicate, and

Whereas, on the 12th day of December 1902, an Imperial Decree was issued in the following terms:—"In view of the important considerations connected with the construction of railways in various parts, a Decree has already been issued apportioning the responsibility for the duties connected therewith. Hereafter the accounts of receipts and disbursements are to be prepared by Sheng Hsuan Huai, and communicated by him for the examination of the High Authorities of the provinces through which the railways pass, and subsequently for submission in a joint memorial to the Throne. When a line of railway has been surveyed, before the work may be begun, plans and specifications must be communicated to the High Authorities above-mentioned, who will depute an official to ascertain that there are no objections. Should Sheng Hsuan Huai enter into any agreement with a foreign Syndicate he must before signing such Agreement obtain the assent of the High Provincial Authorities, and a copy of such Agreement must be submitted to the Throne in a joint memorial," and

Whereas, on further consideration it has been found necessary to make certain alterations in the aforesaid preliminary Agreement, now therefore it is agreed that this final Agreement shall be substituted for the preliminary Agreement above referred to.

Article 1.—The Corporation agrees to issue on behalf of the Railway Administration, a sterling loan (hereinafter referred to as the loan) for an amount not exceeding £3,250,000 sterling, on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire sum, similar to the bonds of the Imperial Railways of North China, with the Railway as first mortgage security therefor. The loan shall be issued in two or more parts, and each series is to be in such amount as the Engineer-in-Chief may determine under direction of the Director-General and the Corporation, in accordance with the extent of the work to be undertaken, so as to prevent the Chinese Government from suffering undue loss of interest. The price agreed upon for the loan is 90 per cent. of the nominal value, and any loss or profit in selling these bonds to the public shall be borne by or go to the Corporation. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, and be payable half-yearly.

The duration of the loan is fixed at fifty years, commencing from the date of the ratification of this Agreement, but no interest will be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese

Minister in London in consultation with the Corporation may sanction.

If any of the bonds or net profit certificates hereinafter mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds or certificates, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record, and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned.

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the railway, and in paying interest on the loan during the course of construction.

The Corporation shall build and equip as economically as possible in accordance with the best modern system, the line from Shanghai to Nanking, it being hereby agreed that the Chinese Administration shall secure the necessary land for a double line of railway for the whole distance, as well as other facilities for the purposes of the construction and working of the line.

When the line is completed, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government for redeeming the bonds, or to be placed through the Director-General in a bank on deposit for the purpose of paying interest on the loan or for developing business beneficial to the Shanghai-Nanking Railway, all to be arranged at the proper time between the Director-General and the Corporation. Should Chinese themselves build branch lines to act as feeders to this railway, it is understood that the system of construction and equipment thereof shall be adopted by such branch lines in order to facilitate through connection.

In all matters relating to the construction and administration of the railway by the officials of the British and Chinese Corporation it is expressly agreed that particular heed shall be paid to the opinions, habits, and ideas of the Chinese people, and that when practicable Chinese shall be employed as far as possible by the Board of Commissioners in positions of trust and responsibility in connection with the railway.

In regard to the earthwork or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese under the sanction of the Director-General or his deputy, said work itself to be in accordance with plans and specifications of the Engineer-in-Chief, and under his supervision.

In the further and final survey detailed plans and estimates of cost, whether of the respective sections of the main line or of any extensions, branches, or alterations of the same, are to be submitted to the Board of Commissioners for the approval of the Director-General.

Article 3.—The loan shall be secured by mortgage now entered into in equity, and shall as soon as possible hereafter be secured by a specific and legal first mortgage in favor of the Corporation upon the railway now completed between Woosung and Shanghai, and also on all lands, materials, rolling-stock, buildings, property, and premises of every description purchased or to be purchased by the railways herein referred to, and on the last-mentioned railways themselves as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as of the same purport and effect as a mortgage customarily executed and delivered in England to a trustee for the purpose of securing loans and bond issues upon railway properties.

Article 4.—According to Article 1 of this Agreement it is provided that the loan is to be

paid in instalments from time to time as the work proceeds. It is hereby agreed that within eight months after this Agreement is officially signed and ratified the Corporation shall pay the first instalment to meet the requirements for the work, whether the proceeds come from the sale or hypothecation of the bonds or from advances made, provided the appropriate series of bonds for the required instalment of such loan shall have been executed and delivered. If after the expiration of twelve months from the date of the ratification hereof the work of construction shall not have been begun on the main line, this Agreement is to become null and void.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and payments of contracts there, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Board of Commissioners hereafter mentioned as being actually required for the construction of any particular section of the main line shall be ordered by the Board of Commissioners after consideration to be transferred to Shanghai to be kept in the Hongkong and Shanghai Bank, or such bank or banks as may be mutually agreed upon, and placed to the credit of the construction account of the Railway Administration for the exclusive purpose of building such section or sections of the railway herein provided for under the supervision of the Board of Commissioners.

On each occasion of a remittance being made to China the amount realized in sycee will be reported to the Director-General, and any portion which may not be required shall be placed at interest. Similarly the balance in England shall be placed at interest.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Board of Commissioners for examination and for report to the Director-General for the information of the Wai-Wu-Pu and for his further report to the Board of Revenue and the Bureau of Mines for record therein, after such accounts have been approved and signed by him.

Article 5.—The dates of the bonds mentioned in Article 1, and of the certificates mentioned in Article 12 of this Agreement, shall be of even date with this Agreement. Interest shall begin to run upon the bonds only from the date of their respective sales and deliveries to the public, and due adjustment of such interest will then be made with respective purchasers for any fractional period of time thereafter covered by the coupon next maturing. For the purpose of such adjustment the then current interest may be reckoned from the nearest first or fifteenth day of the month in which the sale and delivery occur as the case may be.

Coupons which have theretofore matured are to be cancelled and delivered to the Chinese Minister in London for transmission to the Railway Administration.

As to the form of bond, it is to be agreed upon by the Director-General or by the Chinese Minister in London and the British and Chinese Corporation at the same time as this Agreement is signed, but if hereafter the money markets in London or other countries require the modification of the form of the bond, except in anything that affects the amount of the loan, the rate of interest, the period of the loan, and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Director-General for the approval of the Wai-Wu-Pu.



The bonds and the net profit certificates referred to in Article 12 are to be engraved entirely in the English language, and shall bear the fac-simile of the signature of the Director-General and of his seal of office, in order to dispense with the necessity of signing them all in person. But the Chinese Minister in London is to sign each of the bonds and certificates and put his seal thereon as required, as a proof that the issue and sale of these bonds as well as the certificates are duly authorized and binding upon the Chinese Government.

Such bonds or net profit certificates are to be numbered consecutively, and as many bonds or certificates as may be needed are to be properly engraved under the supervision of the Corporation.

The loan bonds herein referred to, as soon as they are engraved and signed and sealed by the Chinese Minister in London as hereinbefore provided, are to be countersigned by the Corporation.

The Chinese Minister in London and the Corporation are to agree upon the selection of a proper safe deposit in London to keep these bonds, subject to the needs and requirements of the Corporation, so as to enable it during the progress of the construction to sell these bonds after having been signed and sealed by the Chinese Minister in London in separate lots from time to time, or hypothecate the same in order to raise money to pay for the construction of the railway or any of the branch lines as may have been approved by the Director-General.

When the second and subsequent issues are about to be made, if the Corporation receives sufficient notice from the Director-General that subjects of China wish to take up a portion of the issue, the necessary amount of bonds will be set aside for Chinese subscribers, to whom the bonds will be sold at the same price and on the same conditions as those sold to the public in London. If possible, arrangements will be made for issuing these bonds, and paying the interest thereon, in China, at the current rate of the day.

The amount of the loan is fixed at £3,250,000 for the purpose of constructing and equipping the main line of the Shanghai-Nanking Railway, in accordance with the survey and estimates of the Engineer-in-Chief as approved by the Director-General.

The first issue of bonds shall be made in London in such amount as may seem necessary for the work to be undertaken, but before the second or subsequent issues are made the Corporation shall give sufficient notice to the Chinese Minister in London, in order that if the Chinese Government has funds at its disposal at the time it may place such funds to the credit of the construction account of the Chinese Railway Administration, to be used in the same manner as the proceeds of the loan, and in that event the total amount of the loan of £3,250,000 shall be reduced by the amount thus supplied by the Chinese Government.

It is also agreed that the moderate charge for the safe deposit of the bonds is to be paid from the general accounts of the railway. Beyond this all expense for the engraving and the sale of the bonds and such like are to be borne by the Corporation. On withdrawal or deliveries of bonds the Safe Deposit Company shall notify the Chinese Minister in London.

Article 6.—When the work of construction is ready to begin the Director-General shall appoint a Board for surveying the construction and operation of the railway, to be called the Board of Commissioners, whose head office shall be at Shanghai. The members thereof shall be five, of whom two are to be Chinese,—one to be appointed by the Director-General and one by the Director-General in consultation with the High Authorities of the province through which the line passes; and besides the Engineer-in-Chief there shall be two British members selected and appointed by the Corporation. The salaries of these five members are to be fixed by the Director-General and the Corporation, and to be paid from the general accounts of the railway. The regulations for the guidance of the Board of Commissioners shall be subsequently drawn up by the Director-General in consultation with the Agent of the

British and Chinese Corporation. In case of disagreement between the Chinese and British members the matter shall be referred to the Director-General and the Agent of the Corporation resident in China for adjustment in an amicable way.

The appointments and functions of all the employees of the railway, Chinese and foreigners, with the exception of the Engineer-in-Chief, who shall be nominated by the Corporation and approved by the Director-General, as well as their salaries, including those of the officials of high rank referred to in the following paragraphs, are to be made and fixed by the Board of Commissioners and reported to the Director-General. In the case of important appointments the same shall be first reported to the Director-General by the Chinese members of the Board.

In addition to the Board of Commissioners, the Viceroy (the Superintendent of Southern Trade) may also appoint an official of equal rank with the above-mentioned two Chinese officials, whose duty will be to make report for the information of the High Provincial Authorities on the state of the railway accounts, the progress of the work, and the management of the railway. To this end he will be granted every facility by the Board of Commissioners, who will always give him access to the records of the head office at Shanghai. But this official shall not in any way interfere with the Board in the performance of its duties. The salary of this officer shall be the same as that of the two Chinese members of the Board, and be paid out of the railway account.

The functions of the Engineer-in-Chief, who will at all times give courteous consideration to the wishes of the High Provincial Authorities and the Director-General, shall be limited to the construction and operation of the line and the management of affairs connected with the railway. No foreigners employed in the railway shall be allowed to treat Chinese officials with disrespect, or interfere in local affairs, or usurp the authority of local officials; and should any such be guilty of riotous conduct, or of wounding and maiming Chinese, the same shall be dismissed on complaint being made by the Director-General.

As the progress of construction reaches any particular province the appointment, under the Imperial sanction, of a Chinese official of high rank shall be made in such province by the Director-General, for facilitating the settlement of any local matter with the Provincial Government concerned.

For the service of the railway any Chinese of official rank and competent for the work may be recommended by the Board of Commissioners to the Director-General for employment, under the formality of a letter of appointment.

For the important offices of the railway foreigners of ability and experience shall be employed. In the engineering and traffic departments competent Chinese may also be employed, and all employees, whether Chinese or foreigners, if incompetent in their work or unsatisfactory in their behaviour, may be dismissed at any time by the Board of Commissioners, and the dismissal shall be reported to the Director-General. The Chinese and British members of the Board when ill or absent may be represented at the Board by available substitutes. In the case of the Chinese members the substitutes must be approved by the Director-General, and in case of the British members by the Corporation.

When deemed necessary a school for the education of Chinese in the construction and working of railways shall be undertaken by the Board of Commissioners, subject to report to and approval by the Director-General.

The accounts of the receipts and disbursements of the railway are to be kept by a Chief Accountant, whose records and books are at all times open to the inspection and examination of the Board of Commissioners. All the accounts of the railway construction and operation are to be kept in Shanghai currency in the English and Chinese languages, with the combined signature of a Chinese and British official. The staff of the Chief Accountant's department shall be composed of Chinese and foreigners, who must be satisfactory and reliable men.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the railways, its property and equipment, said mortgage to be executed by a deed in the usual form as contemplated by the said Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this railway is in fact a Chinese property.

All the lands that may be required for a double line of railway from Shanghai to Nanking, and for the double track-sidings, stations, repairing shops, and car-sheds to be provided for in accordance with the detailed plans now made or hereafter to be made by the Engineer-in-Chief, and approved by the Director-General, shall be acquired by the Railway Administration, whether in whole or in part, according to the means at its disposal at the actual cost price of the land. The cost of such land is not to exceed £150,000.

The titles to the land for the line and of all other lands shall be free from all encumbrances or entanglements, and shall from time to time as soon as secured be registered in the name of the railway.

For such money as may be provided by the Railway Administration for the purchase of land there shall be allowed yearly interest at the rate of 6 per cent., to be paid by the railway after the fixed charges and maintenance and interest of 5 per cent. on the bonds shall have been met.

Notices of such purchase (together with corresponding title-deeds) are to be transmitted by the Railway Administration under the direction of the Director-General to the local agent of the Corporation for record and preservation in its office in Shanghai, and for the purpose of establishing the first mortgage security (and thereafter for the return to the Railway Administration) as hereinafter in this Article provided in respect of railway lands and properties. When the term of this Agreement expires all the title-deeds shall be surrendered and returned to the Railway Administration.

The amount to be advanced to the Chinese Railway Administration for any land within the survey limits shall altogether not exceed the sum of £150,000, for which yearly interest at the rate of 6 per cent. shall be allowed from the receipts of the railway. It is understood that any land bought by the Chinese Railway Administration with their own money outside of the survey limits, but needed for future requirements, shall be on the Chinese Administration's own account, and no interest shall be allowed on the price thereof.

It is further agreed that if the British and Chinese Corporation is called upon to provide means for the acquisition of the lands, whether by the sale of bonds or by advances from other sources, the Chinese Government guarantees to procure and protect all the lands that are required for the line of railway.

All lands the title-deeds of which are lodged with the Corporation as part of the first mortgage security of the loan shall not be disposed of in any way by hire, lease, or sale to any party for any purpose whatever without the written consent of the Chinese Administration.

It is also agreed that the lands thus bought, whether from Chinese or British advances, shall be free from all entanglements arising from the removal of graves or from prejudices of "fengshui," and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Shanghai office of the British and Chinese Corporation, and to be held by it as a first mortgage security for the bonds under the provisions of this Agreement until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Chinese Railway Administration.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, and the net profits on the net profit certificates shall have been paid, no part of the lands comprised in the mortgage security or the railway with its appurtenances shall be



transferred or given to another party, or shall be injured, or that the rights of the first mortgage shall be in any way impaired.

It is likewise agreed that until the interest and principal of the loan and all indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Chinese Railway Administration shall not again mortgage the above properties to another party, whether Chinese or foreign.

During the period of this agreement no special taxes shall be levied by the Chinese Government on the railway, its appurtenances or earnings, but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the railway and its operations.

The first expense in railway construction being the purchase of land, it is agreed that as soon as the survey is made the Corporation shall advance to the Railway Administration sums as required to pay for the land purchased. For such advances the Woosung Railway, with all its property, shall be given as first mortgage security, and interest at the rate of 6 per cent. per annum shall be allowed until the first portion of the loan has been floated, when such advances shall be repaid from the first proceeds of the loan.

As owing to the unwillingness of owners to sever their land it may become necessary for the Railway Administration to acquire more land than is actually necessary for railway purposes, the Railway Administration may do so in view of future requirements, but it is understood that any land bought from funds so advanced, out of the survey limits, shall be on the Chinese Administration's own account. When the purchase of all the land is completed, and the total amount thus expended is ascertained, an additional issue of bonds for an amount not exceeding £250,000, including the £150,000 referred to in this Article, shall be made in order to repay the sums spent in the purchase of land.

Such bonds shall be similar to the bonds mentioned in Article 1 of this Agreement, and shall have the same guarantee and same mortgage security and same treatment, with, however, this difference, that they shall be redeemable at par at any time on giving six months' notice, and that the rate of interest shall be 6 per cent. per annum. The interest on such portions of this loan as is applied to the purchase of land outside of the Engineer-in-Chief's survey shall in the first place be paid out of the Chinese share of the net profits of the railway, and failing this then out of the earnings of the railway.

As the object which the Railway Administration has in view is that all railway lands should be Chinese property, the additional loan of £250,000 shall be paid off as soon as practicable. Nevertheless, although such bonds may be redeemed, the land occupied by the railway within the survey limits shall continue as mortgage security under the terms of this Agreement.

Article 8.—It is agreed that if the half-yearly interest of the bonds is not paid on any due date thereof, or if the principal of the loan remains unpaid at maturity of the same, the whole railway with all its appurtenances herein mortgaged to the British and Chinese Corporation for the bondholders shall be handed over to the Corporation to be dealt with by it according to law, in such manner as will ensure the proper protection of the interests of the bondholders. When the whole loan and the interest due thereon and all indebtedness shall have been paid off, the railway, with all its appurtenances, in good working condition shall revert to the possession and management of the Chinese, according to the provisions of this Agreement.

Article 9.—As remuneration for superintendence and services the Corporation shall receive 5 per cent. on the entire cost of all materials purchased for the railway.

It is agreed that all materials required for the railway shall be purchased in the open market at the lowest price obtainable, but it

is understood that all such materials shall be of good and satisfactory quality. Invoice and inspector's certificates are to be submitted to the Chinese Administration.

With a view to encouraging Chinese industries Chinese materials are to be preferred, as also the products of the Han-yang Iron Works, provided price and quality are suitable.

No commission will be allowed to the Corporation on the purchase of materials except as herein provided. All trade discounts or rebates, if any, are to go to the construction account.

Article 10.—In the construction of the line, in the working of the railway, and in the performance of the different kinds of business connected with the railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the line while in construction or when in operation, and all the properties of the railway, the combined enterprise of the Chinese Administration and British and Chinese Corporation, as well as all foreigners and Chinese employed therein, are to enjoy the utmost protection from the local officials, civil and military, in the provinces through which the railway passes, particularly on occasions of local disturbance or of obstruction by natives.

The Board of Commissioners are authorized to maintain a railway police of Chinese with Chinese officers for the protection of the line. Their wages and maintenance are to be wholly defrayed by the railway. In the event of the railway requiring further protection by the military forces of the Imperial or Provincial Government the same will be duly applied for by the Director-General and promptly afforded, it being understood that such military forces, although transported free by the railway, are to be maintained at the expense of the Government or the Province, as the case may be.

The railway police may not interfere with matters outside the railway.

Article 11.—In connection with the railway there shall be established and maintained a proper signalling service, which shall include such telephone and telegraph conveniences as may be found necessary to use along the line of the railway and its branches for the exclusive purpose of regulating the movement of trains and other incidental business of the railway, and such telephones and telegraphs shall not be used in or interfere with the rights and privileges of the Telegraph Administration.

It is further agreed that the Corporation may, in consultation with the Director-General, also establish and maintain in connection with such railway or its branches such other necessary adjuncts of modern railway operation as it may find expedient for the support of the railway, such as repair and manufacturing shops, docks, steamers, ferries, storage warehouses, etc.

Article 12.—It is agreed that after deducting from the income of the railways the working and other expenses as described below, the Corporation shall receive 20 per cent. of the net profits, to be represented by and in form of certificates to an amount equal to one-fifth of the cost of the line. These certificates carrying no interest, they are to have a term of fifty years and a declared face value of £100 each, and are to be issued to the Corporation at the same time as the loan bonds, and in amount proportionate to the respective series of such bonds to the amount of one-fifth of the aggregate thereof. And it is understood that if there is an issue of the loan bonds in excess of the requirements of the railway, and such excess is retired or cancelled, a like proportion of these certificates shall likewise be subject to retirement.

Before the expiration of the term of fifty years the Chinese Administration shall have the right at any time to redeem these certificates at their face value. After the expiration of fifty years the certificates shall be null and void and need not be redeemed, but if any net profits shall have accrued on such certificates prior to their redemption or maturity, said accrued net profits must be paid before the same are cancelled.

The Chinese Railway Administration is entitled to issue and receive like net profit certificates (to be in form appropriate for use in China

and unlimited in their term, as also without redemption features) to an amount equal to the remaining four-fifths of the loan. These Chinese certificates may be issued in whole or in part whenever desired by the Director-General, but the net profits will be retained and used by the Railway Administration for the purpose of accumulating a fund to be derived from such share of net profits as may accrue thereon wherewith to pay off any loan bonds which may from time to time be redeemed under the provisions of this Agreement, or for generally reducing or ultimately discharging railway loan obligations whenever or wherever desirable by means of the profits of the railway. But such Chinese certificates may, however, be used in part by the Railway Administration if necessary in payment of lands which are essential to the railway, and which cannot otherwise be conveniently acquired by it.

The yearly income of the railway shall be subject to a deduction of all working expenses, cost of maintaining and repairing the railway, renovating or replenishment of engines and rolling-stock, and all expenditure connected with the business of the railway, and subject to the payment of interest on the bonds at 5 per cent. per annum (and of interest of 6 per cent. per annum on the cost of the land provided by the Chinese Administration, or provided by an advance from the British and Chinese Corporation), whatever is left of the gross income is considered to be net profits, of which one-fifth is to be given to the Corporation for disposal as it may see fit. If the loan bonds shall have been all redeemed according to the provisions of this Agreement before the net profit certificates issued to the Corporation have been redeemed, or shall have lapsed by effluxion of time, the Corporation shall be permitted to have a representative in the railway office (whose salary is to be paid by the Railway Administration) to inspect the accounts of the railway.

The duties of this officer are those of an Accountant who is to protect the interests of the foreign holders of net profit certificates until such time as these certificates shall have all been redeemed or lapsed by effluxion of time, when the services of such Accountant shall be dispensed with.

Article 13.—The British and Chinese Corporation are hereby appointed trustees for the bondholders and holders of net profit certificates, and in any future negotiations respecting these loans or matters arising in connection therewith, which may take place between the Railway Administration and the Corporation, the latter Corporation shall be taken as representing the bondholders and holders of net profit certificates, and as empowered to act on their behalf.

Article 14.—All materials of any kind that are required for the construction of the main line or branch lines, whether imported from abroad or from the provinces to the scene of the work, shall (following the precedent of the Northern Railway) be exempted from Customs duty and likin. The bonds of this loan together with their coupons, the net profit certificates and the income of the railway, shall be free from imposts of any kind by the Government of China.

As to the likin for goods or passengers which may be transported over the lines from, to, or through the different provinces, the Director General will confer with the Government Bureau of Mines and Railways and the Board of Revenue with a view to devising means to protect the traffic of the railway, and those who may use the railway for the transport of their goods, from illegal impositions and other abuses.

If the arrangements for the levy of likin over other railway lines is found to be more advantageous than that of the railways mentioned in this Agreement, the same advantages shall be extended to and enjoyed by the Shanghai-Nanking Railway, and by those who make use of the same.

Article 15.—It is agreed that during the time of the construction of the line the yearly 5 per cent. interest on the bonds and 6 per cent. interest on the amount spent in the purchase of the land are to be paid from the proceeds of the loan. The accruing interest from any



proceeds of the loan not used during the period of construction, and the earnings from the working of any sections as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the line is wholly completed the interest on the bonds and on moneys spent in purchasing the land are to be paid from the earnings of the line every half-year on the first day of June and first day of December.

It is hereby agreed that the amount required for the payment of interest and repayment of principal, together with a sum of one-quarter of 1 per cent. on such amounts to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed agents for the service of repaying the loan, shall be paid to them in Shanghai fourteen days before the due dates, in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation on the said date of payment at the rate fixed at the time of settlement.

The Chinese Government undertakes and hereby promises to pay the principal of the loans and the interest on the loans on the due dates fixed therefor. If at any time the earnings of the railway and proceeds of the loan are not sufficient to pay the interest of the bonds, the Railway Administration is to devise means for supplying the deficiency; and should its inability to do so appear probable the Director-General will memorialize the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due date of such interest in the hands of the Hongkong and Shanghai Banking Corporation in Shanghai.

Article 16.—In places along the line of railway where the Hongkong and Shanghai Banking Corporation has no agencies, and where it does not intend to establish any agencies, business relations are to be cultivated with the Chinese Imperial Bank and its local agencies, it being the intention of the British and Chinese Corporation to utilize the Imperial bank as much as practicable for facilitating the movement of funds.

Article 17.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to their successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement or the management of the railway to other nations or people of any nationality except British or Chinese. Similarly the Railway Administration shall not transfer any of its rights under this Agreement to persons of other nationality.

It is further agreed that without the express consent in writing of the Director-General and the British and Chinese Corporation no other rival railway detrimental to the business of the same is to be permitted, and no parallel line to the Shanghai-Nanking Railway is to be allowed to the injury of the latter's interest within the area served by the Shanghai-Nanking main line or branch lines.

Article 18.—If on account of contingencies beyond the control of the Corporation, such as war or very great political changes in China or elsewhere, occurring before the publication of the prospectus of the issue of an important series of bonds of the loan hereby concerned, the foreign money markets are affected, or the construction of the railway is so obstructed that work cannot be carried on, the Corporation will be allowed a reasonable extension of time for floating such loan or the bond issues thereof, or for the commencement or completion of the construction of the railway. But if bonds have already been issued and interest already become payable thereon, then the work cannot be suspended or postponed unless subject to the exceptions mentioned in the preceding paragraphs.

When the Agreement has been ratified the work shall be begun as soon as possible, and if the Chinese Railway Administration desire, each section will be pushed on as rapidly as practicable. From the date of ratification a limit of five years shall be allowed for the completion of the whole line, subject to the preceding exceptions mentioned in this Article; and if this period is exceeded, unless with the consent of the Chinese Administration, the Corporation shall forfeit its one-fifth share of net profits already earned during the previous five years, and shall not begin to participate in such net profits until the line has been completed.

Article 19.—In the working of the railway the tariff for fares and freights is to be prepared by the General Traffic Manager, and submitted to the Board of Commissioners, who shall, after due consideration of existing tariffs of other railways in China, approve an economical rate.

The General Traffic Manager is likewise authorized to make arrangements, subject to the approval of the Board of Commissioners, with connecting railways of other companies for through rates of fare and freight.

In case of military operations, whether on account of foreign war or internal insurrection, the movement of troops, ammunition, and stores, by the Chinese Government, and in case of famine or other great calamity, the despatch of relief shall, on the requisition of the Director-General, have preference over the line at half of the tariff rates.

Nothing to the injury of China shall be allowed to be carried over the line, neither shall the line be used to the detriment of China.

Article 20.—In the Preliminary Agreement, dated 13 May, 1898 (23rd day of intercalary 3rd Month of the 24th Year of Kwang-Hsu), it is stipulated that the Railway Administration has the right to redeem the loan at 102½ after twelve and a half years, and at par after twenty-five years. It is now agreed that if at any time after the lapse of twelve and a half years from the date of the issue of the bonds the Chinese Railway Administration receives instructions from the Chinese Government to cancel any of the bonds or any of the net profit certificates, the Director-General shall, not less than six months previous to the proposed redemption, notify in writing the Agent of the Corporation in Shanghai declaring the number of bonds or the number of net profit certificates so required to be redeemed and cancelled.

The Agent of the Corporation shall immediately on the receipt of such notice in writing proceed to make arrangements for the desired redemption by drawing lots, and taking other proper steps in the way customary in London, of the number of bonds or net profit certificates in such quantity as may be required. And as soon as the Railway Administration, under instructions from the Chinese Government, shall remit the proper amount according to the redemption price of the bonds or the redemption price of the net profit certificates, together with the interest due on the bonds, or the net profits due on the certificates, a notice shall be published in two of the most prominent papers in London, and in such other financial centres as may be agreed upon with the Chinese Minister for four weeks. At the expiration of the four weeks, and on the day fixed for the redemption, the Corporation shall cause the usual lots to be drawn for the redemption of the bonds or certificates, and shall pay over the respective prices of the same to their respective holders, and shall thus redeem the bonds or net profit certificates and cancel them, and thereupon the same are to be delivered to the Director-General, or the Chinese Minister in London, for return to the Director-General.

All the loan bonds and the net profit certificates shall express that they are redeemable at any time on the conditions mentioned in the preceding paragraph, and shall state that the payment of any interests for the bonds, and of the participation of any of the net profits by the certificates so drawn by lot, entirely cease from the date mentioned in the published notice of the Corporation. The amount required for the redemption shall, however, have to be

got ready and placed in the hands of the Hongkong and Shanghai Banking Corporation before such redemption is carried out.

The loan bonds, if redeemed before twenty-five years from the date they were originally issued, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay £100), but after twenty-five years from the date of issue to the expiry of the term of the loan the bonds may be redeemed without payment of any premium. If any interest is still due on any of the bonds at the time of redemption, such interest shall have thereupon to be paid in full. As to the net profit certificates, if they are redeemed within the term of their duration they are to be paid for according to their face value, and such certificates run to the end of their term they become null and void and no price need be paid on them, nor need they be redeemed, but any net profits still due on them shall have to be fully paid up according to their amounts before the same are cancelled.

Article 21.—If any proceeds of the sale of bonds are lying unused and bearing interest on their deposit whilst the construction of the railway is going on, such interest is to go to the general account of the Chinese Railway Administration, in order that the Railway Administration may enjoy the full advantage thereof.

It is also agreed that if the Corporation shall find it necessary, before the sale of any of the bonds, to advance any money for the work, the expense of effecting such advances, together with the interest thereon, not exceeding a charge of 6 per cent per annum, shall be deducted from the interest derived from the above mentioned unused proceeds of the sale of the bonds, or otherwise to be provided for in the construction accounts. It is further agreed that the proceeds of the first sale of the bonds immediately following any such advance shall be used to pay off the said advances, so as to save the cost of the aforesaid charge.

Article 22.—If any of the bonds still remain unredeemed, when the fifty years of the term of the loan are about to expire, the Director-General will, within two years preceding the expiry of the said term, negotiate by writing with the Corporation for an extension of the term of the loan; and if six months shall have expired after such negotiations in writing and no definite arrangements shall have been come to, the Chinese Government shall be at liberty to take steps to devise means for procuring elsewhere funds to pay off the loan, and to redeem the bonds and cancel the mortgage.

Article 23.—The existing Woosung-Shanghai line (as soon as the price agreed upon is ready to be handed over to the Railway Administration) shall be taken over as part of the Shanghai-Nanking system, and the earnings and administration of this section shall be treated in like manner as the Shanghai-Nanking line. The price of the Shanghai-Woosung line shall be taken as Tls. 1,000,000, and this amount shall be paid to the Chinese Railway Administration out of the proceeds of the loan.

Article 24.—Immediately after the signature of this Agreement, and before the issue of any prospectus of the loan to the public, the Director-General shall memorialize the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement. The Imperial Edict so received shall then be officially communicated without delay to the British Minister in Peking by the Wai-Wu-Pu.

Article 25.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Railway Administration, one by the Wai-Wu-Pu, one by the Bureau of Railways and Mines at Peking, one by the British Minister in Peking, and one by the Corporation, and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Shanghai by the Contracting Parties this fifteenth day of the intercalary fifth month of the twenty-ninth year of the Emperor Kwang-Hsu, being the ninth day of July nineteen hundred and three of the Western Calendar.



**AGREEMENT FOR THE CONSTRUCTION OF A RAILWAY FROM TAO-KOW TO CHINGHUA, IN THE PROVINCE OF HONAN, MADE BETWEEN H. E. SHENG HSUAN-HUAI, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND GEORGE JAMIESON, ESQ., C. M. G., AGENT-GENERAL OF THE PEKING SYNDICATE LIMITED, ALSO BEING FULLY AUTHORIZED BY THE SAID SYNDICATE.**

1.—On the 21st May 1898 (Kwanghsu 24th year 4th Moon 2nd day) the Shansi Bureau of Trade signed an Agreement with the Peking Syndicate for working coal and iron in the five following places, namely, Yu Hsien, Pingting Chow, Luanfu, Tsechowfu, and Pingyangfu in the province of Shansi, and on the 21st June 1898 (Kwanghsu 24th year 5th Moon 3rd day) the Yu-Feng Company signed a mining Agreement with said Syndicate for mining in Honan in the neighborhood of Huai Ching and north of the Yellow River. These Agreements were both ratified by the Tsungli Yamen, in pursuance of an Imperial Decree dated 17th May 1898 (Kwanghsu 24th year intercalary 3rd Moon 27th day). In Article 17 of said Agreements it was stated that the Peking Syndicate, on notifying the Governor of the province, should be permitted to build a railway to connect the mines with a main line or with water navigation. In June 1902 the Peking Syndicate began to open coal mines in Sui Wu Hsien of Honan province, and at the same time gave notice to the Governor and obtained permission to build a railway from the said mines to Taokow, a port on the Wei River.

The British Minister has now applied that the said railway be put under the General Administration of the Imperial Chinese Railway Company, and the matter having been arranged in consultation with the Wai Wu Pu, this Agreement has been discussed and settled between the Director-General of the said Imperial Chinese Railway Administration and the said Syndicate.

The line from Taokow to Tsechow is divided into two sections, the first from Taokow to the neighborhood of Chinghua Chen, a distance of 90½ miles; the second section is from Chinghua Chen to the neighborhood of Tsechow in Shansi, a distance of 38 miles more or less.

The construction of the first section has been undertaken by the Peking Syndicate, and is now approaching completion. The present Agreement deals specially with the first section from Taokow to Chinghua Chen. As regards the second section, it is agreed that hereafter, when the Peking Syndicate has fixed a date for opening mines in the neighborhood of Tsechow, a supplementary Agreement will be drawn up between the Director-General and the Peking Syndicate to provide funds for construction, etc., of this section on terms in conformity with those of the present Agreement for the Taokow to Chinghua line, and on the basis of the Russian Cheng-Tai Railway Agreement, said terms to be settled at their discretion.

The cost of construction of the line from Taokow to Chinghua Chen, including rolling-stock and monies expended by the Syndicate as estimated by the Chinese Engineer after verification of the proper accounts, is £614,600. But in order to provide a liberal sum to meet the expenses of working the line until it is fully developed, and the interest on the loan, the Director-General has fixed the amount of the loan at £700,000, in 7000 bonds of £100 each. This loan is to bear interest at 5 per cent. per annum, and to be called the Chinese Imperial Government Honan Railway 5 per cent. (gold) loan of 1905.

2.—Out of the above amount of £700,000 there will be issued to the Syndicate 6829 bonds of £100 each, which the Syndicate takes firm at the price of 90 per cent. of face value, equivalent to £614,600 cash, in order to refund the above amount of capital. This will be done on the day when the line is handed over to China, and interest on the bonds will accrue from date of issue.

At the same time the Syndicate will make up and present an account with vouchers of all initial expenditure not already included in construction account, and of the sums provided by them from time to time for the ordinary working of the line from the date of opening to traffic to the time of handing over, and request the General Administration to examine and settle it. Any loss on working account after deducting earnings will be borne half and half by each. To the amount so found due will be added interest on capital from

January 1st, 1905, to the date of handing over, and the total of these two items will be refunded to the Syndicate by the former issue of bonds out of the 171 surplus bonds in hand for the required amount reckoned at 90 per cent. of face value. If any bonds still remain over, they will be retained by the Imperial Chinese Railway Administration for future use. If after the line is taken over the earnings of the line are insufficient to meet the payment for interest and refund of capital at due date, a further loan may be obtained from the Syndicate. These bonds shall be signed in the name of the Chinese Government by the Chinese Minister in London.

The interest coupons will be paid at their face value in gold in London on the 1st of July and 1st January of each year. Coupons falling due and paid will be collected in numerical order by the Syndicate at its cost and handed over to the Chinese Minister in London.

3.—The loan shall be redeemed in twenty years dating from the tenth year of issue by annual drawings, which shall be held in London at the office of the Peking Syndicate, in conformity with the schedule hereto annexed.

The drawings will be held on the 2nd Tuesday of January of each year. The first of such drawings shall be held in the year 1916. The number of drawn bonds at each drawing will be published in four daily newspapers at the cost of the Syndicate.

4.—Drawn bonds shall be paid in gold at their face value at date when the next interest falls due. Bonds presented for payment must be surrendered along with all the interest coupons not yet due. In case of shortage the sum of the missing coupons shall be deducted from the capital repayable. Interest on the bonds will cease on the date when the latter are repayable. Repaid bonds will be collected by the Peking Syndicate at its cost, and handed over to the Chinese Minister in London.

5.—The Chinese Government shall not be at liberty before the year 1916 to augment the amount of the annual instalments for redemption, nor to repay the whole amount of the loan, nor to convert the loan. After this date the Chinese Government shall be at liberty at any time to repay the whole amount of the loan, provided, however, that until the expiry of the Syndicate's mining concessions the rates then in force for the conveyance of minerals shall not be arbitrarily increased to the detriment of the Syndicate's business. On the other hand, the Syndicate, after having settled an equitable tariff with the General Administration, based on the practice on other lines, shall not make pretexts to lower the rates to the detriment of the fund available for payment of principal and interest.

6.—Interest coupons and drawn bonds shall be repayable in gold in London at the office of the Peking Syndicate, or of such bank as the Syndicate may appoint for that purpose.

7.—Payment of interest and repayment of the bonds forming this loan are guaranteed upon the general revenue of the Chinese Government. Further, by consent of the Chinese Government, the Imperial Chinese Railway Administration hereby declares that the net earnings of the said section of railway, after payment of the ordinary working expenses, are specially reserved for payment of interest and repayment of the said bonds, as is set out in the Working Agreement made between the said Imperial Chinese Railway Administration and the Peking Syndicate, and which Working Agreement is to be taken as one with this Contract. This reserve is exclusively for the purposes above set forth, and is not divertible until the final extinction of the bonds of this loan.

8.—The Imperial Chinese Railway Administration, after having taken note of the net receipts, authorises the Peking Syndicate to convert the amount into gold, which shall be done on the most favorable terms in the interest of the Chinese Government and the Imperial Chinese Railway Administration, in order to assure the service of the loan at the next half-yearly period of payment. The remittances to the head office of the Peking Syndicate in

London shall continue until the sum necessary for the whole service of the loan at the next half-yearly payment has been realised in gold, and so that the service of the loan is assured three months at least before the half-yearly payment falls due.

The bank in which such sums are deposited will allow the best interest obtainable, for the benefit of the Imperial Chinese Railway Administration. The account in which said sums stand will be debited twenty days in advance with all the payments falling due at any half-yearly period, as provided for in this Contract, whether for interest, repayment of capital, cost of transport or commission.

9.—In order to assure more fully the guarantee now given for the loan, the Imperial Chinese Railway Administration creates in favor of the bonds a first mortgage over the said section of railway line, its permanent way, rolling-stock, and earnings. This special hypothecation is made to and accepted by the Peking Syndicate for the benefit of the bondholders.

In case the Imperial Chinese Railway Administration shall fail to carry out the engagements entered into by this Contract the Peking Syndicate can exercise, in respect to the said railway and property, all the rights and powers which they are entitled to exercise resulting from this special hypothecation.

10.—The foregoing stipulations do not militate against the responsibility of the Chinese Government in regard to this loan as specified in Article 7. The Chinese Government will devise means to provide the amount in gold necessary to supply the deficiency in case the sums accruing from the net earnings of the said section of railway, and paid over by the Chinese Railway Administration, are insufficient, after conversion into gold, to provide at least three months ahead for the payment falling due at the next half-yearly period.

In such case the Chinese Government will on demand place at the disposal of the Peking Syndicate, fourteen days in advance of the due date, either in gold or value in some other form sufficient to produce in gold, the sum which the Syndicate may have notified as being necessary to meet the service of the loan.

11.—From the monies thus received from the Imperial Chinese Railway Administration, or from the monies paid over by the Chinese Government, the Peking Syndicate shall duly set aside beforehand the sums necessary for the next service of the loan on the basis of the requirements of the last preceding half-year.

12.—The Chinese Government will pay to the Peking Syndicate, or to the bank charged with the service of the loan, a commission of one-fourth of 1 per cent. on the amount of interest coupons paid,—that is, £25 on each £10,000, and the like commission on all bonds drawn for payments or repaid in anticipation of the due date. The amount of this commission will be taken from surplus earnings of the railway, if there are any, and in case these are insufficient it will then be paid by the Chinese Government.

13.—The Chinese Government binds itself to respect and cause to be respected the privileges attaching to the bonds as stipulated for in the present convention, and to maintain the bonds themselves, the interest coupons and operations incident to the service of the loan, free from every tax and impost of whatsoever nature.

14.—Coupons not presented for payment within five years from the date when they fall due will be forfeited for the benefit of the Chinese Government. In case of drawn bonds the term within which payment may be claimed is thirty years. In the case of a deceased bondholder the right will pass to his heirs, executors, etc., in conformity with the law of his own nationality.

Payment of the coupons and repayment of bonds will be made whether in time of war or peace, and irrespective of whether the holder belongs to a hostile or friendly State.

If bonds are lost, stolen, or destroyed the Chinese Government, upon satisfactory proof of the facts of the loss and the title of the



claimant, will authorise the Pekin Syndicate to issue fresh bonds to replace those lost, at the expense of the Syndicate.

15.—The Chinese Government, through its Representative in London, will take the necessary steps and furnish the necessary documents so as to enable the bonds to be officially quoted on the London Stock Exchange.

16.—The price of all land taken up for the railway having been included in the loan, the Syndicate will in the first place hand over the title-deeds to the Imperial Chinese Railway Administration, so that a list may be made which, after being stamped by the Magistrates of the several districts concerned, will be retained for record. The Railway Administration will then return the deeds to the Syndicate for custody, having first impressed on each a stamp indicating that they are not to be sold, pledged, or mortgaged. When the term has expired, or when the loan is fully repaid, the Syndicate will thereupon hand over to the Railway Administration all the original title-deeds, to be held by them as owners of the property. During the continuance of the term the Syndicate shall not assign the deeds to others, whether by way of sale, mortgage, or pledge.

17.—This Agreement and the rights under it being made with the Pekin Syndicate, which is of British nationality, the said Syndicate, besides conforming as hereby required with the several articles of the Agreement, shall not either openly or secretly alienate the said rights to persons of another nationality and shall not

substitute persons of another nationality in the management of the railway affairs. A breach of this stipulation will entitle the Imperial Chinese Railway Administration to take the management out of the hands of the Syndicate, and entrust it to another company, and in that case the Syndicate shall have no claim for compensation.

The foregoing places no restriction on the holding of shares in the Pekin Syndicate by persons of another nationality, nor on the holding of bonds of this loan, both of which may be freely bought and sold on the market at the convenience of the holders.

18.—In the accounts of this section there has been included an item for preliminary survey expenses, as also the cost of partial surveys of the second section which have already been made by the Syndicate, the result of which will be submitted to the Director-General.

19.—All plant and materials necessary for the repair and working of the line will be purchased by the Syndicate as agents, but in placing such order the Syndicate will do their best to get the most favorable terms. A list of articles required shall be submitted to the Director-General for approval before the order is given.

It is understood that articles which China herself can manufacture, if quality and price are the same, are not to be ordered from abroad. The workshops and mines controlled by the Director-General Sheng ought more especially to have the preference in supply of such articles, provided that in quality and price the articles are equivalent to what can be imported from

abroad. By price is meant the cost in the foreign country plus freight and insurance. All materials imported from abroad shall be exempt from customs duty, and from likin in transit to the interior.

20.—In case of difference of opinion arising between the Pekin Syndicate and the Chinese Government, or the Imperial Chinese Railway Administration, the matter in dispute shall be discussed and settled between a member of the Wai Wu Pu and the British Minister. If these cannot agree the Wai Wu Pu and the British Minister will appoint an Arbitrator, whose decision will be final.

21.—This Agreement is executed in duplicate, one copy to be kept by the Imperial Chinese Railway Administration and the other by the Pekin Syndicate. In case of doubt or ambiguity of meaning between the two texts, the English version shall be deemed the standard. This contract shall be submitted to the Throne by the proper authority, who will request ratification. After ratification the Wai Wu Pu will officially communicate the fact to the British Minister at Peking for record, and so that the Syndicate may conform to the articles hereby agreed upon.

All the above must be done within one month from date of signature.

Signed and sealed at Peking the 3rd July, 1905.

Signature and Seal of

SHENG HSUAN-HUAI,  
Director-General of Railways.

(Signed) G. JAMIESON,

Agent-General, Pekin Syndicate Ltd.

**WORKING AGREEMENT MADE BETWEEN HIS EXCELLENCY SHENG, DIRECTOR-GENERAL OF RAILWAYS, BEING THERETO SPECIALLY AUTHORIZED BY THE CHINESE GOVERNMENT, AND G. JAMIESON, C. M. G., AGENT-GENERAL OF THE PEKIN SYNDICATE LIMITED.**

1.—The Imperial Chinese Railway Administration, under the authority of the Imperial Government, authorises the Pekin Syndicate, which will appoint a General Manager for the purpose, to manage, administer, and work the Taokow-Chinghua section of railway for profit on behalf of the said Railway Administration. Notice of the appointment of the General Manager shall be communicated beforehand to the Director-General for his information and confirmation.

2.—As soon as this section of the line is completed, the Pekin Syndicate will report to the Director-General, and after being definitely taken over by him, the Pekin Syndicate will take charge of it for working. The section is to be completely provided beforehand with all the rolling-stock necessary for working, as also with a supply of tools, furniture, and funds for working expenses. The Pekin Syndicate or its delegate, in conformity with the stipulation in Article 1, will organize the service. It will have authority to engage or dismiss officials and servants, and as to their salaries a scale thereof will be drawn up beforehand for submission to the Director-General, and subsequent alterations will also be submitted for his approval. The Syndicate shall also purchase all articles necessary for the maintenance and repair of the line, shall fix rates for goods and passengers in accordance with the railway regulations on other lines, shall receive all the earnings and pay all the working expenses and the expenses of the Imperial Chinese Railway Administration relative to this railway. All the above working details must be submitted beforehand by the Pekin Syndicate or its delegate to the Director-General of Railways and settled in consultation.

The General Administration shall have the fullest power to examine the details of income and expenditure, and to appoint a Representative, a Cashier, Accountant, and an Interpreter, who will be associated with the European staff, in order to exercise the above-mentioned power of examination. The salaries of the Representative and his associates above-mentioned will be paid from the office of the Tsechow-Taokow Railway.

The Representative shall countersign all vouchers for payment. Accounts will be rendered monthly to the General Administration in English and Chinese, one copy each, and signed by the respective English and Chinese officials.

The General Administration reserves the right to cause the dismissal of any employee, what-

ever his nationality, including the General Manager, who does not perform his work satisfactorily or is guilty of misconduct, insubordination, or disrespect towards the Chinese authorities, and this should be mentioned in the contracts at the time of engagement of the employee.

All Chinese Employees, whether for repairs of line or otherwise, will be selected by the Representative of the Director-General, who will place them under the executive orders of the General Manager. No Chinese officials or servants can be engaged without the sanction of the Director-General. The expenses of the Shanghai Imperial Railway Administration in respect to this line shall be paid in the same way as for the Luhan Railway. After this section is finished and the working has begun, if additional rolling-stock or plant is required, or if improvement or extensions of the line or stations become necessary, the funds for the same shall be provided by the office of the Tsechow Railway. As regards contracts for the supply of materials necessary for maintaining and repairing the line, means should be devised to place the same at Chinese workshops. It is understood that the mines and workshops controlled by H. E. Sheng shall have the preference on the conditions and at the price at which the articles could be purchased abroad. By price is meant laying down cost in China.

3.—In the event of military operations, whether due to foreign war or internal disturbances, the railway will give the preference to Chinese Government troops, stores, or munitions of war over private merchandise in conveyance over the line.

Rates to be charged in such cases shall be one-half of the ordinary rates, and in such matters the railway will carry out any special instructions given by the Director-General. Articles tending to the injury of the Chinese Government are not to be carried on the line.

In case of famine, stores for relief will be carried at half rates.

Special arrangements will be made in consultation with the Representatives of the Director-General for conveyance of local authorities or members of the Imperial Government travelling on important business over the line. Free passes over the railway shall be countersigned by the Representative of the Director-General.

4.—From the net earnings of the line after paying all working expenses the Pekin Syndicate shall retain such sums as are necessary to meet the service of the loan at least three

months in advance of the next half-yearly payment. This procedure will be followed until the whole loan is finally redeemed. The sums retained will be paid over monthly to the Pekin Syndicate, or to the bank appointed for that purpose by the Syndicate. The latter will convert the sums so received into gold at best rate obtainable, in order to be used for the service of the loan. Information as to this will be given from time to time to the Director General.

When by means of monies thus paid over the service of the loan is assured, the Syndicate will set apart 10 per cent. of the surplus, which will be devoted to building up a reserve fund in order to meet the cost of ordinary or extraordinary repairs with a view to assure the working of the line. The surplus of net earnings still remaining will be paid over to the Imperial Chinese Railway Administration. When the loan is all repaid, in accordance with the next following article, the Syndicate or its Representative will hand over to the Representative of the Director-General all the line, fixtures, rolling-stock, and appurtenances, the whole in good working condition.

5.—The duration of the present contract is fixed at thirty years from date of signature. If, however, on the expiry of that date the loan is not fully paid off, the term of the contract will be necessarily extended, and it will continue until the whole loan is finally redeemed. But if the loan is finally redeemed before the due date, the present working contract shall become null and void from the date of such redemption.

6.—The Pekin Syndicate, during the term of this contract for the working of the line, shall be entitled to receive from the Imperial Chinese Railway Administration, on making up the yearly accounts, 20 per cent. of the surplus profits of each year. By surplus profits is meant what is left over after providing for payment of interest and redemption of capital.

7.—In case of dispute the matter is to be settled as provided for in Article 20 of the principal contract.

8.—If the earnings are insufficient to meet working expenses, the Imperial Chinese Railway Administration will provide funds so as to enable the regular working of the line to be kept up. The funds thus supplied will be considered as a temporary advance merely, and to be paid as soon as the income exceeds expenditure.

9.—All materials and supplies which the Syndicate may require for the working, main-



tenance and repair of the line shall, if imported from abroad, be exempt from Customs duty and likin.

10.—The present contract is drawn up in two copies, one for the Imperial Chinese Railway Administration and the other for the Syndicate.

In case of doubt or difference in interpretation of the contract the English version shall be deemed the standard.

This Contract shall be submitted to the Throne for ratification by the proper authorities, and when the Imperial sanction has been obtained, it will be communicated by the Wai

Wu Pu in an official despatch to the British Minister. Signed and sealed at Peking the 3rd July 1905.

Signature and Seal of

SHENG HSUAN-HUAI,

Director-General of Railways.

(Signed) G. JAMIESON,

Agent-General, Peking Syndicate Ltd.

# **LOAN AGREEMENT FOR £1,100,000 FOR RECOVERY OF THE CANTON-HANKOW R. R. CONTRACTS (TRANSLATED FROM THE CHINESE.)**

(Date of signing not given in the agreement. Becomes effective October 6, 1905.)

This Agreement, made between the Junior Guardian of the Heir Apparent Viceroy of the Hu-Kuang, Chang Kung Pao, of the Empire of China, and the Hongkong Government of Great Britain:

Whereas: Chang Kung-Pao has received a special decree directing him to arrange to take back the Canton-Hankow Railroad, and whereas the loan (hereinafter described) has been consented to by His Majesty the Emperor of China, and is to be made on behalf of the present and the succeeding Viceroys or Governors of Hupeh, Hunan, and Kuang-tung; and

Whereas: All the affairs pertaining to or concerning the Canton-Hankow Railroad are under the management of Chang Kung-Pao who is now in need of money to pay the American Company for the redemption of the right of constructing the railroad; and whereas Chang Kung-Pao after conference with the British Government has requested the same to loan him the money necessary to pay the American Company in order to purchase back the outstanding shares in fulfillment of the charge committed to him; and whereas the British Government has instructed the Governor-General of Hongkong to promise the loan, as requested, for the purpose mentioned; therefore the following agreement is now made:

1. The Hongkong Government agrees to loan to the three provinces of Hupeh, Hunan and Kuang-tung the sum of One Million and One hundred thousand pounds, £1,100,000, and to hand over the said amount on the conditions hereinafter stated in paragraph No. 7. As to the amount of this debt for which each of the above mentioned provinces shall be responsible, it shall be definitely settled and upon a decision being reached, the amount for each province shall be declared.

2. This loan is made for a period of ten years, commencing on the 8th day of the 9th moon of the 31st year of Kuang-Su (October 6th, 1905), and is to be refunded in ten yearly installments, i.e. £110,000 per year, the end of the first year i.e. the 19th day of the 8th moon of the year 1906 being the day for the payment of the first installment. After the payment of the fifth installment, if the said three provinces are willing to complete the payment of the remainder of the loan in one payment, notice must be given six months prior to the proposed date of settlement. After the payment, of the loan and interest this agreement shall become void.

3. The interest on the sum included in this loan is to be £4½ per £100 per annum, payable

semi-annually, being calculated on the amount of the said loan and yet refunded.

4. The amounts of the loan and the interest to be paid at each period and the dates of payment are to be reckoned in accordance with the list attached to this agreement, and are to be paid from time to time at the Treasurer's Office at Hongkong. Drafts in gold pounds will be received at their face value. If so desired by the Hongkong Government, payment of any installment shall be made in silver at the rate of the day. The opium tax of Hupeh, Hunan and Kuangtung is made a bond and a security for the payment of the capital and interest of this loan, which shall constitute a first charge upon these revenues. During the period in which the whole or any part of this loan remains unpaid, the opium tax of the three above mentioned provinces shall not be made security for any other loans, and during the continuance of this loan should there be another agreement entered into mortgaging the opium taxes of Hupeh, Hunan and Kuang-tung, either singly or unitedly, it shall not be given precedence over this agreement nor made a joint charge with this loan upon said revenues. It must be plainly stated in any such agreement that the payments of principal or interest can be paid from these revenues only after this loan shall have been paid. Should the opium tax of these three provinces be insufficient to pay the loan, the Viceroy of Hu-Kuang shall confer with Hunan and Kuang-tung ascertaining in which province the tax is not sufficient to meet the provisions of this loan and in such a province or provinces additional appropriation shall be made from other taxes or likin toward the payment of this loan. If under such an arrangement the said provinces are still unable to pay back the installments of interest and capital at the due dates, then the British Government may ask the Viceroy of Hu-Kuang to confer with Hunan and Kuang-tung ascertaining which province is unable to meet its part and shall set aside other reliable taxes or likin, to be administered by the Imperial Maritime Customs, as security for this loan.

6. It is further agreed that bonds in gold pounds guaranteed by likin shall be deposited and retained in the British Consulate General at Hankow as security for this loan, and the total value of these bonds in taels shall be equivalent to the total sum of the capital and interest of this loan. These papers shall be sealed with the seal of the Viceroy of Hu-Kuang and signed by the Hankow Commissioner of Customs. If the interest and capital of this loan should not

be paid into the Treasury at Hongkong at the times herein specified, these likin bonds may be used in the provinces of Hupeh, Hunan and Kuang-tung in payment of likin, and any officials of these three provinces who are at all concerned by this agreement shall be notified to act in accordance with these stipulations.

7. It is agreed that the Hongkong Government is to remit £400,000 on the sixth day of October, 1905, to the Hongkong and Shanghai Banking Corporation at Hankow to be handed to Chang Kung-Pao, who will receive the same, and the sum of £700,000 will be forwarded to New York and there to be handed over to the Chinese Minister Liang in America. The Hongkong Government may from time to time call upon the British Consul General at Hankow to request from Chang Kung-Pao such evidence as may seem fit to prove that the money loaned is being actually used for the above purposes, i. e. the purchasing of the Canton-Hankow Railroad Concession.

8. This agreement, previous to its signature, has been submitted in a Memorial to the Throne, and an Imperial Edict has been issued approving the same and the Wai Wu Pu shall at once send a despatch to the British Minister at Peking informing him of this agreement.

9. In this agreement the opium tax of Kuang-tung has been mentioned as a part of the security given for this loan. Chang Kung-Pao has conferred with the Viceroy of the Liang-Kuang by telegraph regarding this loan and the Viceroy of the Liang-Kuang has replied agreeing to have the opium tax of his province given as security, so that there can be no difference of opinion hereafter so far as the articles of this agreement affect the province of Kuang-tung.

10. Six copies of this agreement shall be made in Chinese and English, one to be kept in the yamen of the Viceroy of Hu-Kuang, one to be kept in the yamen of the Viceroy of Liang-Kuang, one to be kept in the Governor's yamen in Hunan, one to be forwarded to the Governor-General at Hongkong, one to be handed to the British Minister at Peking, Sir Ernest Satow, and one to be kept in the British Consulate General at Hankow. In the event of their being any difference of meaning between the Chinese and English texts, the English text shall be considered the correct one.

(Sgd.) E. H. FRASER,  
British Consul General at Hankow.

(Sgd.) CHANG CHIH-TUNG,  
Viceroy of Hu-Kuang Provinces.

## **AGREEMENT BETWEEN THE WAI-WU-PU (BOARD OF FOREIGN AFFAIRS OF THE CHINESE GOVERNMENT) AND THE BRITISH AND CHINESE CORPORATION LIMITED, FOR THE ISSUE AND REGULATION OF A LOAN FOR THE CONSTRUCTION OF A RAILWAY FROM THE CITY OF CANTON TO THE BOUNDARY OF THE KOWLOON LEASED TERRITORY UNDER BRITISH CONTROL (HEREINAFTER CALLED THE RAILWAY.)**

This Agreement is made at Peking on the 23rd day of the first month of the 33rd year of Kwang Hsu, corresponding to the 7th day of March 1907, and the contracting parties are:—

The Wai-Wu-Pu acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation Limited (hereinafter called the Corporation), of the other part.

Whereas a preliminary agreement was made on the 28th March, 1899, between H. E. Sheng, Director-General of the Imperial Chinese Railway Administration, acting under the authority of the Tsung-Li Yamen, of the one part, and the British firm of Jardine, Matheson & Company, for themselves and on behalf of the Hongkong and Shanghai Banking Corporation, representing as Joint Agents the Corporation, of the other part, and it was part of the objects thereof that the terms of another preliminary

agreement signed by the same contracting parties on the 13th May, 1898, should be thereby adopted as a preliminary agreement for the construction and working of a Railway from the city of Canton to the boundary of the Kowloon leased territory under British control, subject, however, as far as might be practicable, to the terms and conditions thereafter agreed to in the final contract for the Shanghai-Nanking Railway when signed and ratified.

Now it is hereby agreed by and between the parties hereto as follows:

Article 1.—The Corporation agrees to issue, on behalf of the Imperial Chinese Government, a sterling loan (hereinafter referred to as "the loan") for the amount of £1,500,000 on the terms and conditions hereinafter contained. Imperial Chinese Government bonds are to be issued for the entire amount, similar to the bonds of the Shanghai-Nanking Railway, with the Railway as first mortgage security

therefor. The loan shall be in one issue and the price agreed upon is 94 per cent. of the nominal value, subject to the other provisions of this Article as hereinafter stated. The interest on the bonds shall be at the rate of 5 per cent. per annum on their nominal value, payable half-yearly, on the first day of June and the first day of December, and shall be calculated from the date of their sale to the public.

The loan shall be issued to the public as soon as possible after signing this Agreement, but, if at the date of signature thereof, owing to an unfavorable state of the market rendering the issue of the loan and the payment of its proceeds to the Viceroy of Canton impossible on the terms above named, then in such case the Corporation shall thereafter, at such time as the Chinese Government may decide within a period not exceeding eight (8) months, issue the loan and pay the proceeds thereof to the Viceroy, deducting and retain-



ing six (6) points from the rate at which the loan is actually issued to the public, whatever that rate may be (*i. e.* if the issue price be 101 the Viceroy will receive 95, and so on).

Subject to the provisions of Article 16, the duration of the loan is fixed at thirty (30) years commencing from the date of the signature of this Agreement, but no interest shall be paid on any bonds which may be redeemed or cancelled under the terms hereinafter mentioned after the redemption or cancellation thereof.

On the face of each of these bonds shall be expressed the value thereof in the sum of £100, or in such different amounts as the Chinese Minister in London, in consultation with the Corporation, may sanction.

It is understood that the Chinese Government may hereafter, in its discretion, appoint a Director-General of the Railway, upon whom, in such case, will devolve all the powers, functions and responsibility herein attributed to the Viceroy of Canton (hereinafter called the Viceroy).

Article 2.—The proceeds of the loan are to be used in the construction and equipment of the Railway, and in paying interest on the loan during the course of construction.

The Railway, being the first mortgage security for the loan, shall be built and equipped under the direction of the Viceroy, in accordance with the provisions of Article 6 hereinafter, and shall be built as economically as possible in accordance with the best modern system.

It is understood that the Viceroy will secure all the necessary land for the Railway, and will give the necessary instructions to expedite and facilitate the work of construction. The Railway will be built in the first instance as a single line, but provision will be made, with the approval of the Viceroy and wherever necessary to meet traffic requirements, for the eventual construction of a double line.

If, during the time of construction, the proceeds of the loan, together with the accrued interest thereon, payable by the Corporation, should, after the deduction of the sums necessary for the payments of interest on the loan, be insufficient to complete the construction of the Railway, the amount of the deficiency shall either be provided from the Chinese Government's own resources or by a supplementary loan to be hereafter issued by the Corporation, the interest and other conditions of which supplementary loan shall be arranged when the time arrives, having due regard to the conditions of the money market.

When the Railway is complete, if there is a surplus from the sale of bonds, the said surplus shall be at the disposal of the Chinese Government either to redeem the bonds in accordance with the terms of this Agreement, as hereinafter stated, or to be placed on deposit with the Hongkong and Shanghai Banking Corporation, for the purpose of paying interest on the loan, or for other purposes beneficial to the Railway, in regard to which the Viceroy will communicate in due course with the Corporation.

In all matters relating to the construction of the Railway it is expressly agreed that particular heed shall be paid to the opinions and habits of the Chinese people, and that, when practicable, Chinese shall be employed in positions of trust and responsibility in connection with the Railway.

In regard to earthwork, or such other work as Chinese are competent to perform, contracts shall be entered into for such work with Chinese, under the sanction of the Head Office, and the work itself shall be carried out in accordance with plans and specifications of the Engineer-in-Chief and under his supervision.

Detailed plans and estimates of cost, whether of the respective sections of the Railway, or of any alterations of the same, are to be submitted for the approval of the Viceroy, by the Engineer-in-Chief through the Managing Director.

Article 3.—The loan shall be secured by mortgage, declared to be now entered into in equity by virtue of this Agreement, and shall, as soon as possible hereafter, be secured by a specific and legal first mortgage in favor of the Corporation upon all lands, materials, rolling stock, buildings, property and premises,

of every description purchased or to be purchased for the Railway, and on the Railway itself, as and when constructed, and on the revenue of all descriptions derivable therefrom.

The provisions of this Article in respect of the mortgage are to be construed and treated as equivalent in purport and effect to a mortgage, customarily executed and delivered in England to a Trustee, for the purpose of securing loans and bond issues upon Railway properties in foreign countries.

Article 4.—It is hereby agreed that in six (6) months after this Agreement is signed, the Corporation shall provide the amount necessary to proceed with the detailed survey of the Railway, and for preliminary construction work if necessary, whether this amount comes from the sale or hypothecation of the bonds, or from advances made, provided that bonds for the required amount shall have been executed and delivered to the Corporation. If, after expiration of eight (8) months from the date of ratification hereof, the work of construction shall not have been begun on the Railway, this Agreement is to become null and void, but if failure to commence construction be due to any cause of *force majeure*, a reasonable extension of this time-limit shall be arranged between the Viceroy and the Corporation.

Of the proceeds realized from the sale of the bonds, after deducting so much of them as may be required to be kept in England for the purchase of materials and the payments of contracts there, or for repayment of advances, such amounts as may be estimated and certified to by the Engineer-in-Chief to the Viceroy through the Managing Director, as being actually required for the construction of any particular section of the Railway, may be ordered by the Viceroy, after consideration, to be transferred to Hongkong to be kept in the Hongkong and Shanghai Bank, and place to the credit of the construction account of the Railway for the exclusive purpose of constructing the Railway in the manner herein provided for under the supervision of the Head Office and the Viceroy.

On each occasion of a remittance being made to China, the amount realized in Sycee will be reported to the Viceroy, and any portion which may not be required shall be placed at interest. Similarly, the balance in England shall be placed at interest, to be allowed at the usual rate.

The accounts of the money spent from time to time in England, and of the money transferred to the credit of the construction and other accounts for use in China, are to be submitted quarterly to the Head Office for report to the Viceroy, for the information of the Waiwupu, and for his further report to the Board of Revenue, and the Board of Communications, for record therein, after such accounts have been approved and signed by him.

Article 5.—As to the form of the bond, it is to be agreed upon by the Viceroy, or by the Chinese Minister in London and the Corporation, as soon as possible after the signature of this Agreement, but if, hereafter, the money markets in London or other countries require any modification of the form of the bond, except in anything that affects the amount of the loan and the liability of the Chinese Government, which are not to be touched at all, such slight modifications may be made to meet the views of the money markets by the Corporation in consultation with the Chinese Minister in London.

Any modifications are to be reported at once by the Corporation to the Viceroy for the approval of the Waiwupu.

The bonds are to be engraved entirely in the English language, and shall bear the facsimile of the signature of the Viceroy and of his seal of office, in order to dispense with the necessity of signing them all in person, but the Chinese Minister in London shall, previous to the issue of any Bonds, put his seal upon each bond with a facsimile of his signature, as a proof that the issue and sale of the bonds are duly authorized and binding upon the Chinese Government.

Such bonds are to be numbered consecutively; and as many bonds as may be needed are to be properly engraved under the supervision of

the Corporation; and after they are sealed by the Chinese Minister in London, as heretofore provided, are to be countersigned by the Corporation.

All expenses for the engraving, safe deposit, and sale of the bonds are to be borne by the Corporation.

Article 6.—When the work of construction is ready to begin, the Viceroy will establish a Head Office at Canton for the construction and management of the Railway. This Office will be under the direction of a Chinese Managing Director (appointed by the Viceroy) with whom will be associated a British Engineer-in-Chief, and a British Chief Accountant. These British employes shall be proposed and certified as competent for their posts by the Corporation, and shall be approved by the Viceroy: if their services should prove unsatisfactory to the Viceroy, he shall request the Corporation to dispense with their services and to nominate their successors, and, in the event of the Corporation desiring to remove them for good cause, it shall do so in consultation with the Viceroy. It is understood that the duties performed by these employes are intended to promote the mutual interests of the Chinese Government and the bondholders respectively, and it is therefore agreed that all cases of difference arising therefrom shall be referred for amicable adjustment between the Viceroy and the Representative of the Corporation. The salaries and other terms of agreement of the Engineer-in-Chief and the Chief Accountant shall be proposed by the Corporation, for approval by the Viceroy; and the amount of their salaries, etc., shall be paid out of the general accounts of the Railway.

For all important technical appointments on the Railway Staff, Europeans of experience and ability shall be engaged, and wherever competent Chinese are available they shall also be employed. All such appointments shall be made, and their functions defined, by the Managing Director and the Engineer-in-Chief in consultation, and shall be submitted for the Viceroy's approval; similar procedure shall be followed in the case of Europeans employed in the Chief Accountant's department. In the event of the misconduct, or the incompetency of European employes, their services may be dispensed with by the Managing Director, after consultation with the Engineer-in-Chief, and subject to the sanction of the Viceroy. The form of agreements made with European employes shall conform to the usual practice.

The accounts of the receipts and the disbursements of the Railway's construction and operation shall be kept in Chinese and English in the Department of the Chief Accountant, whose duty it shall be to organize and supervise the same, and to report thereon for the information of the Viceroy through the Managing Director, and of the Corporation. All receipts, and payments, shall be certified by the Chief Accountant and authorized by the Managing Director.

For the general technical staff of the Railway the necessary arrangements shall be made by the Managing Director in consultation with the Engineer-in-Chief, and reported to the Viceroy in due course.

The duties of the Engineer-in-Chief shall consist in the efficient and economical construction and maintenance of the Railway, and the general supervision thereof in consultation with the Managing Director. He shall always give courteous consideration to the wishes and instructions of the Viceroy, whether conveyed directly or through the Managing Director, and shall always comply therewith, having at the same time due regard to the efficient construction and maintenance of the Railway.

A school for the education of Chinese in railway matters shall be established by the Managing Director, subject to the approval of the Viceroy.

Article 7.—Under the provisions of Article 3 of this Agreement the properties covered by the first mortgage security hereby created include the Railway, its property and equipment, and the mortgage is to be executed by a deed in the form contemplated by the said



Article. But subject to the guarantee and mortgage thus given by the Chinese Government, it is hereby declared that this Railway is in fact a Chinese property.

All land that may be required along the whole course of the Railway within survey limits, and for the necessary sidings, stations, repairing shops and car sheds, to be provided for in accordance with the detailed plans now made, or hereafter to be made by the Engineer-in-Chief, and approved by the Viceroy, shall be acquired by the Viceroy at the actual cost of the land, and shall be paid for out of the proceeds of the loan.

The title deeds of the land for the Railway and all other lands shall be free from all encumbrances and entanglements and shall, from time to time, as soon as secured, be registered in the name of the Railway.

Notices of all purchases of lands for the Railway within the survey limit (together with corresponding title deeds) are to be transmitted by the Railway Head Office under the direction of the viceroy to the local Agent of the Corporation for record and preservation in its office in Hongkong, and for the purpose of establishing the first mortgage security until the time when the same are to be returned to the Viceroy, as hereinafter in this Article provided.

All lands, the title deeds of which are lodged with the Corporation as part of the first mortgage security of the loan, shall not be disposed of in any way by hire, lease, or sale, to any party, for any purpose whatsoever, without the written consent of the Viceroy, except only in the event of the Imperial Chinese Government failing to pay the interest or principal of the bonds, and then in accordance with the powers in the deed of mortgage.

The lands thus bought shall be free from all encumbrances, liabilities, and entanglements, and shall be conveyed by full and sufficient deeds of assignment according to Chinese law, all of which are to be kept and recorded in the Hongkong Office of the Corporation, and are to be held by it as a first mortgage security for the bonds under the provisions of this Agreement, until such time as principal and interest of the bonds, together with all indebtedness, shall have been paid off, when the same shall then be returned to the Viceroy, except only in the case of the Imperial Chinese Government's failure to pay the interest or principal of the bonds and consequent realization under the powers of the mortgage security.

For the proper protection of the first mortgage security the Chinese Government undertakes that until the bonds shall have been redeemed, no part of the lands comprised in the mortgage security or the Railway with its appurtenances shall be transferred or given to another party, or shall be injured, and that the rights of the first mortgage shall not be in any way impaired, unless with the consent in writing of the Corporation, which shall only be given if in the opinion of the Corporation the interests of the bondholders will not be affected.

And further, that until the interest and principal of the loan and all the indebtedness shall have been paid off, or unless with the express consent in writing of the Corporation, the Chinese Government or the Viceroy shall not again mortgage the above properties to another party whether Chinese or foreign.

During the period of this Agreement no special taxes shall be levied by the Chinese Government on the Railway, its appurtenances, or earnings: but all taxes at present payable, such as land tax, as well as any taxes which the Chinese Government may hereafter institute, such as stamp duty, etc., and which may be applicable generally to all commercial transactions in China, shall also apply in the case of the Railway and its operations.

Article 8.—It is agreed that if the half-yearly interest on the bonds is not paid on any due date thereof, or if the principal of the loan be not paid in accordance with the amortisation schedule hereto attached, the whole Railway with all its appurtenances herein mortgaged to the Corporation for the bondholders, shall be handed over to the Corporation to be dealt with by it according to law in such manner as will ensure the proper pro-

tection of the interests of the bondholders, provided, however, that if the failure to make payment at any one date be due to causes beyond the control of the Chinese Government, and if the Viceroy request the Corporation to postpone the taking over of the Railway for a reasonable period of grace, the question shall be amicably discussed and decided between the Viceroy and the Representative of the Corporation. When the whole loan and the interest due thereon and all the indebtedness shall have been paid off, the Railway with all its appurtenances in good working condition shall revert to the possession and management of the Chinese Government according to the provisions of this Agreement.

Article 9.—As remuneration for all services rendered by the Corporation, during construction of the Railway, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed, but not later than eighteen (18) months after commencement of construction, and the other half upon completion of the line. This amount shall be regarded as a commutation of all commissions to which the Corporation and its Agents would properly be entitled, and of payments of all services rendered in the construction and equipment of the Railway, in respect of the present loan; but in the event of any branch lines being decided upon by the Chinese Government for construction in connection with this Railway, and if the Chinese Government decide to build the same by issue of a foreign loan and not from its own resources, then the Corporation shall have the first option of tendering for such loan, and a further payment proportionate to the amount of such supplementary loan, and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission, the Viceroy is entitled to require the Corporation to superintend the purchase of all materials required for the construction and equipment of the Railway, which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and quantities, goods of British manufacture shall be given preference over other goods of foreign origin. Invoices and inspector's certificates are to be submitted to the Viceroy.

With a view to encouraging Chinese industries, Chinese Government and other materials are to be preferred, provided price and quality are suitable.

No commission shall be allowed to the Corporation on the purchase of materials except as above provided. All trade discounts or rebates, if any, are, during construction, to go to the construction account, and after completion, to the credit of the Railway.

Article 10.—In the construction of the line, in the working of the Railway and in the performance of the different kinds of business connected with the Railway, no interference or obstruction by Chinese or foreigners will be permitted. The Chinese Government will provide protection for the Railway while under construction or when in operation, and all the properties of the Railway, as well as Chinese and foreigners employed thereon, are to enjoy the utmost protection from the local officials.

The Railway may maintain a force of Chinese police with Chinese officers, their wages and maintenance to be wholly defrayed as part of the cost of the construction and maintenance of the Railway. In the event of the Railway requiring further protection by the military forces of the Imperial or Provincial Governments, the same will be duly applied for by the Head Office and promptly afforded, it being understood that such military forces shall be maintained at the expense of the Government or the Province.

Article 11.—All receipts and earnings of the Railway shall be regularly paid into the Railway's account with the Hongkong and Shanghai Banking Corporation, and on such funds, whether on daily balance or on fixed deposit,

the Bank's usual rate of interest shall be allowed.

All expenses of working and maintaining the line shall be paid from the receipts and earnings, and any remainder thereof shall be charged with the service of the loan. If, after payment of these expenses, and making due provision for payment of interest at 5 per cent. per annum on the bonds, and for repayments of principal due in accordance with the amortisation schedule hereto attached, there remain surplus funds unappropriated and properly available for other purposes, such funds shall be at the disposal of the Chinese Government to be used in such manner as the Viceroy may decide, provided always that after completion and opening of the line to traffic the amount sufficient for regular payments of interest and repayments of principal shall be deducted from such surplus funds, if any, and shall be deposited with the Hongkong and Shanghai Banking Corporation six months before the date at which such payments fall due.

In the event of there being no surplus funds available as aforesaid from the earnings of the Railway, the amount required for payments of interest and repayments of principal shall be provided in accordance with the conditions of Article 14 hereinafter.

Article 12.—The Corporation are hereby appointed Trustees for the bondholders, and in any future negotiations respecting these loans, or matters arising in connection therewith, which may take place between the Viceroy and the Corporation, the Corporation shall be taken as representing the bondholders, and as such empowered to act on their behalf. In view of the fact that the Corporation's responsibility to the bondholders continues after construction, whereas, as stated in Article 9, its commuted commission for services rendered is limited to the period of construction, and the Corporation is not thereunder entitled to any further remuneration during the period of the loan, the Corporation shall receive as remuneration for its services and responsibility in acting as Trustees for the bondholders the sum of £1,000 per annum, such remuneration to commence from the date of issue of this Loan and to terminate upon its complete redemption.

Article 13.—All materials of any kind that are required for the construction and working of the Railway, whether imported from abroad or from the provinces to the scene of the work, shall be exempted from likin so long as such exemption remains in force in respect of other Chinese Railways. The bonds of this loan, together with their coupons and the income of the Railway, shall be free from imposts of any kind by the Government of China.

Article 14.—It is agreed that during the time of the construction of the Railway, the interest on the bonds and on any advances made by the Corporation is to be paid from the proceeds of the loan. The accruing interest from any proceeds of the loan not used during the period of construction, and the earnings derived by the Chinese Government from the working of any sections of the Railway as they are built, are to be used to make up the amount required for the payment of the said interest, and if any deficiency remains it is to be met from the proceeds of the loan.

When the construction of the Railway is wholly completed, the interest on the bonds is to be paid, from the income or earnings of the Railway received by the Chinese Government, every half-year on the first day of June and the first day of December.

It is hereby agreed that the amount required for the payment of interest and the repayment of principal, together with a sum of one-quarter of one per cent. on such amounts, to cover commission to the Hongkong and Shanghai Banking Corporation, who are hereby appointed Agents for the entire service of repaying the loan, shall be paid to them fourteen (14) days before the due dates in Hongkong or in Canton (at the option of the Viceroy when settling exchange) in local currency sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Hongkong and Shanghai Banking Corporation, the Viceroy having the option of settling exchange at any date or dates within six (6) months previous to any due date for the repayment of interest and principal.



The Chinese Government unconditionally undertakes, and hereby promises, to pay the principal of the loan and the interest on the loan on the due dates fixed therefor. If, at any time, the earnings of the Railway together with funds available from the proceeds of the loan, are not sufficient to meet the interest on the bonds and the repayment of capital in accordance with the amortisation schedule hereto attached, the Viceroy shall devise means for supplying the deficiency; and should his inability to do so appear probable, he shall memorialise the Government to take measures to make up the deficiency from other sources, and thus be ready to pay off the indebtedness, so that the required amount may be placed in each case at least fourteen days previous to the due dates of such payments in the hands of the Hongkong and Shanghai Banking Corporation.

Article 15.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights, powers, and discretions to its successors or assigns, but the Corporation, which is a Corporation formed under English law, shall not transfer its rights under this Agreement to any other nation, or people of any other nationality, except British or Chinese. Similarly, the Chinese Government's rights and authority under this Agreement shall not be transferred to persons of other nationality.

It is further understood that the Chinese Government will not build another line competing with this Railway to its detriment.

Article 16.—The term of the loan, as stated in Article 1, shall be thirty (30) years. Repayment of principal shall commence after the expiry of 12½ years from the date of the loan and shall be completed in 17½ years by yearly payments to the Hongkong and Shanghai Banking Corporation as Agents for the service of the loan, acting for the Corporation under

the terms of this Agreement, in accordance with the amortisation schedule hereto attached.

If at any time after the expiry of 12½ years from the date of the loan, the Imperial Chinese Government should wish to redeem the outstanding amount of the loan, or any portion of it, not yet due under the provisions of the amortisation schedule hereto attached, not less than six months' notice shall be given in writing by the Viceroy to the Representative of the Corporation, declaring the number of additional bonds so required to be redeemed, whereupon the Representative of the Corporation shall immediately proceed to make such arrangements as may be necessary and usual for the redemption of the number of bonds specified, which, when duly redeemed after payment by the Imperial Chinese Government of the proper amount due thereon, shall be cancelled and delivered to the Viceroy.

All bonds thus redeemed, in excess of the amount specified in the amortisation schedule hereto attached, before the expiry of 25 years from the date of the loan, shall be paid for with a premium of 2½ per cent. over their face value (*i. e.* £102, 10s. will be required to pay for £100), but, after 25 years, bonds may be redeemed over and above the amounts specified in the schedule without premium, upon notice being given in the manner above specified.

As soon as the loan has been completely redeemed, this Agreement shall become null and void and the mortgage shall be cancelled.

Article 17.—If, during construction, any proceeds of the sale of the bonds are lying unused and bearing interest on their deposit whilst the construction of the Railway is going on, such interest is to be credited to the general account of the Railway in order that the Railway may enjoy the full advantage thereof.

It is also agreed that, if the Corporation shall think it expedient before the sale of any of the

bonds to advance any money for the work, such advances, together with the interest thereon, not exceeding a charge of 6 per cent. per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 18.—The junction of the sections of the Railway from Canton to the boundary of the Kowloon leased territory under British control, and from the said boundary to the port of Kowloon respectively, and the subsequent joint working of the two sections, shall be arranged by agreement between the Viceroy of Canton and the Governor of Hongkong.

Article 19.—This Agreement is signed under the authority of an Imperial Edict dated . . . , which has been officially communicated to the British Minister in Peking by the Wai-wu-pu.

Article 20.—This Agreement is executed in quintuplicate in English and Chinese, one copy to be retained by the Viceroy, one by the Wai-wu-pu, one by the Board of Communications, one by the British Minister, and one by the Corporation; and should any doubt arise as to the interpretation of the Agreement the English text shall be accepted as the standard.

Signed at Peking by the contracting parties, this 23rd day of the first month of the 33rd year of the Emperor Kwang Hsu, being the 7th day of March, 1907.

Seal of Wai-wu-pu.

Signature of TANG SHAO-YI.

Witnessed by Canton Viceroy's Delegates, TAO-TAIS KUNG and HU.

For the British and Chinese Corporation,  
J. O. P. BLAND.

Representative in China.

Witnessed by—

MESSRS. JARDINE, MATHESON & Co., and H. S. GARDNER, Agent H. & Sh. Bkg. Corporation.  
Joint Agents, B. & C. Corporation.

This Agreement is made at Peking on the fourth day of the second month of the thirty-fourth year of Kuang Hsu, corresponding to the sixth day of March, 1908, and the contracting parties are:—

The Waiwupu (Board of Foreign Affairs) and

The Yuchuanpu (Board of Communications), acting under the authority of an Imperial Decree, of the one part, and the British and Chinese Corporation, Limited (hereinafter called "The Corporation") of the other part.

Article 1. The Imperial Government of China authorizes the Corporation to issue a five per cent gold loan for the amount of £1,500,000 sterling. The loan shall be of the date on which it is issued to the public and shall be called "The Imperial Chinese Government five per cent. Shanghai-Hangchow-Ningpo Railway Loan."

Article 2.—The loan is designed to provide capital for the construction of a railway line (hereinafter called "the railway") from a point connecting with the Shanghai-Nanking Railway at or near Shanghai in Kiangsu to the cities of Hangchow and Ningpo in Chekiang. The railway shall follow a line from Shanghai through Fengchingchen to Kahsingfu; and thence to Hushu and Hangchow; and thence from Chiangkan to Ningpo, on which line certain construction work has already been locally undertaken under authority of the Imperial Chinese Government.

The survey line shall be open to revision by the Yuchuanpu.

Article 3.—The Chinese Government guarantees that the capital so provided shall be solely devoted to the construction of the railway including the purchase of rolling stock and other equipment and to the working of the line during construction; it is understood, however, that the cost of the land required for the railway and the payment of interest on the Loan during construction are not to be met out of Loan funds, but will be paid by the Imperial Chinese Government from other sources. It is understood that the railway will be completed within three years from the date of signature of this Agreement; and that within a period of six months from that date the Corporation shall notify the Yuchuanpu that the sum of £100,000

#### SHANGHAI-HANGCHOW-NINGPO LOAN AGREEMENT.

has been placed at their disposal, to be held in Europe or remitted to China as they may direct, as a first instalment on account of the proceeds of the Loan. This amount of £100,000, or whatever portion thereof is actually advanced, together with interest thereon not exceeding a charge of six per cent per annum, shall be deducted from the proceeds of the sale of the bonds.

Article 4.—The rate of interest for the Loan shall be five per cent per annum on the nominal principal and shall be paid to the bondholders half-yearly. The said interest shall be calculated from the date on which the Loan is issued to the public and shall be paid by the Imperial Chinese Government during the time of construction from Chinese sources, and afterwards, in the first place out of the revenues of the railway, and should these be insufficient then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Liao River) and thereafter, if necessary, from such other revenues as the Chinese Government may see fit to use for the purpose, in half-yearly instalments according to the amounts specified in the schedule attached to this Agreement and fourteen days before their due dates, Western Calendar as calculated half-yearly from the date on which the Loan is issued to the public.

Article 5.—The term of the Loan shall be thirty years. Repayment of principal shall commence after the expiry of ten years from the date of the Loan, and, except as provided in Article 6 hereinafter, shall be made by yearly amortization to the Hongkong and Shanghai Banking Corporation in half-yearly instalments, out of the revenues of the railway, and should these be insufficient, then from the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and thereafter, if necessary, from such other revenues as the Imperial Chinese Government may think fit to use for the purpose, according to the amounts specified in the schedule attached to this Agreement, and fourteen days before their due dates Western Calendar, as calculated half-yearly from the date on which the Loan is issued to the public.

Article 6.—If at any time after the lapse of ten years from the date of the Loan, the Imperial Chinese Government should desire to redeem the whole outstanding amount of the Loan, or any portion of it, not yet due for repayment in accordance with the schedule of repayments hereto attached, it may do so until the twentieth year by payment of a premium of 2½ per cent on the face value of the bonds (that is to say, by payment of £102.10/- for each £100 bond) and after the twentieth year, without premium; but in each and every case of such extra redemption the Imperial Chinese Government shall give six months' notice in writing to the Corporation, and such redemption shall be effected by additional drawings of bonds, to take place on the date of an ordinary drawing as provided for in the prospectus of the Loan.

Article 7.—The Hongkong and Shanghai Banking Corporation having been appointed by the British and Chinese Corporation, Limited, Agents for the service of the Loan, the half-yearly payments due for amortization and interest, referred to in Articles 4 and 5, shall be made in accordance with the amounts of the schedule attached to this Agreement, and fourteen days before their due dates, as fixed by Articles 3 and 5, to the Hongkong and Shanghai Banking Corporation by the Yuchuanpu or its duly appointed representative, who shall hand to the said Bank in Shanghai, fourteen days before the said due dates, funds in Shanghai sycee sufficient to meet such payments in sterling in London, exchange for which shall be settled with the Bank; the Yuchuanpu, or its duly appointed representative, having, however, the option of settling exchange with the Bank at any date or dates within six months previous to any due date for the repayment of interest and principal. These payments may, however, be made in Gold if the Imperial Chinese Government should happen to have Gold funds "bonafide" at their disposal in Europe, not remitted from China for the purpose, and desire so to use them.

In reimbursement of expenses connected with the payment of interest and the repayment of principal of the Loan, the Hongkong and Shanghai Banking Corporation will re-



ceive a commission of one quarter per cent on the annual Loan service.

Article 8.—The Imperial Government of China hereby engages that the interest and principal of this Loan shall duly be paid in full, and should the revenues of the Railway, together with the surplus earnings of the Imperial Railways of North China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), not be sufficient to provide for the due and full payment of interest and repayment of principal, the Yuchuanpu shall memorialize the Throne and the Imperial Government of China will thereupon make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the Bank at the date upon which funds are required to complete full payment of interest and repayment of principal.

Article 9.—The Loan is hereby secured upon the surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River), that is to say, that after deducting from the net earnings of that railway the amounts required to meet the payments of interest and repayments of principal due in terms of the Agreement of October 10, 1898, (Kuang Hsu 24th year, 8th moon, 25th day) to the bondholders of the Imperial Chinese Government Loan of that year, then the payment of interest and repayment of principal of the present Loan shall be a first charge upon the said surplus earnings of the Imperial Railways of North-China (excluding the section of the Hsinmintun-Mukden line to the East of the Liao River) and no deductions or payments shall be made from the earnings of the said railway other than those required to meet the obligations stated in the Loan Agreement of October 10, 1898, (Kuang Hsu 24th year, 8th moon, 25th day) until an amount sufficient to pay the next half-yearly instalment of interest and principal of the present Loan shall have been placed on deposit with the Hongkong and Shanghai Banking Corporation as security for the due payment of the same.

Article 10.—The Corporation is hereby authorized to issue to subscribers to the Loan, bonds for the total amount of the Loan for such amounts as may appear advisable to the Corporation. The form of the bonds shall be settled by the Corporation in consultation with the Yuchuanpu or its duly authorized representative or with the Chinese Minister in London. The bonds shall be engraved in Chinese and English; they shall bear the facsimile of the signature of the Yuchuanpu's duly authorized representative and of his seal of office (in order to dispense with the necessity of his signing them all in person), but the Chinese Minister in London shall, previous to the issue of any bonds, put his seal upon each bond with a facsimile of his signature as a proof that the issue and sale of the bonds are duly authorized by, and binding upon, the Imperial Chinese Government, and the representative of the Corporation in London shall countersign the bonds as agents for the issue of the Loan.

If any of the bonds herein mentioned are lost or destroyed a reissue of any thereof is to be made in the amounts respectively called for by such lost or destroyed bonds, but proper proof of the loss or destruction must be given in the usual form to the Corporation and the Chinese Minister in London for examination and record and the requisite guarantee is to be obtained by the Corporation from the respective claimants concerned, who shall defray all expenses connected with such reissue of bonds lost or destroyed and who under the said guarantee shall undertake to indemnify the Imperial Chinese Government and or the Corporation for any loss sustained by reason of the issue of bonds in the place of bonds lost or destroyed.

Article 11.—All bonds and coupons and payments made and received in connexion with the service of this Loan shall be exempt from all Chinese taxes and imposts during the currency of this Loan.

Article 12.—All details necessary for the prospectus and connected with the payment of the interest and repayment of the principal of this Loan not herein explicitly provided for shall be left to the arrangement of the Corporation in consultation with the Chinese Minister

in London. The Corporation is hereby authorized to issue the prospectus of the Loan as soon as possible after the signing of this Agreement and the Imperial Government will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action and to sign the prospectus of the Loan.

Article 13.—The Loan shall be issued to the public in one series of bonds, as soon as possible after signature of this Agreement and not later than twelve months from the date thereof. The price to the Imperial Chinese Government shall be 93% of the nominal value of the bonds. Subscriptions will be invited by the Corporation in England and in China both from Chinese and Europeans on equal conditions, preference being given to the application by the Chinese Government provided that such application be made before the issue of the prospectus to the public.

Article 14.—The proceeds of the Loan shall be paid to the credit of the Yuchuanpu with the Hongkong and Shanghai Banking Corporation in China or London as the case may be. Payments of the Loan proceeds into the credit of this account shall be made in instalments and on dates conforming to the conditions allowed to the subscribers to the Loan. Interest at the rate of four per cent per annum shall be granted on the credit balance of the portion of this account kept in London; and interest on the credit balance of the portion kept in China will be allowed at the Bank's rates for current account or fixed deposits, as the case may be, to be arranged.

The Bank will hold the net proceeds of the Loan with accrued interest to the order of the Yuchuanpu, or its duly authorized representative, who, in ordering payment of any sums exceeding £20,000, shall give notice to the Bank ten days before the day on which they are required. Requisitions on the Loan funds will be drawn in amounts to suit the progress of construction of the Railway by orders on the Hongkong and Shanghai Banking Corporation, signed by the Yuchuanpu or its duly authorized representative, and accompanied by his certificates or those of the said Board stating the nature and cost of the work to be paid for.

Such amounts as may be required for expenditure in China may be transferred under the instructions of the Yuchuanpu, at their discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation, and the transferred funds shall remain on deposit with that Bank until required for railway purposes.

The Yuchuanpu will cause to be published annually, upon the close of the Railway's financial year, a report in the Chinese and English languages showing the working accounts and traffic receipts of the Railway, which report shall be procurable by the public on application.

Article 15.—If, during the time of construction the net proceeds of the present Loan with accrued interest should not be sufficient to complete the construction and equipment of the Railway line, the amount of deficiency shall be provided in the first place from such Chinese funds as may be available so as to permit of the uninterrupted continuance of the work of construction, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Corporation. The interest and other conditions of such supplementary Loan will be the same as in the present agreement, and the price payable to the Imperial Chinese Government will be the actual rate of its issue to the public less flotation charges of 5½ points retainable by the Corporation, that is to say, £5. 10/- for every £100 bond issued.

If, after completion of the line, there should remain a balance of Loan funds at the credit of the Railway account, such unused balance shall be at the disposal of the Yuchuanpu to be used either for the purpose of paying interest on the Loan or for the equipment of the Railway, or for the construction and equipment of branch lines beneficial to the Railway.

Article 16.—If, before the publication of the prospectus for the issue of the Loan, any political or financial crisis should take place by which

the market and the prices of existing Chinese Government stocks are so affected as to render in the opinion of the Corporation the successful issue of the Loan impossible on the terms herein named, the Corporation shall be granted further extension of time, but not beyond eighteen months from the date of this Agreement, for the performance of their contract. If, within this time limit the Loan shall not have been issued, this contract shall become null and void, and any advances made by the Corporation under the provisions of Article 3 shall be repaid by the Chinese Government with accrued interest, but without any other compensation or remuneration whatsoever.

Article 17.—The construction and control of the Railway will be entirely vested in the Imperial Chinese Government. For the work of construction the Yuchuanpu, or its duly appointed Managing Director, will select and appoint a British Chief Engineer, who shall be a professional man of established reputation to be selected either in England or from the staff of one of the existing Chinese Government Railways. The Chief Engineer will be under the orders of the Managing Director, or, in his absence, of his duly authorized representative. In his general conduct he shall pay all due respect to the Managing Director. The terms of the Chief Engineer's agreement will be arranged by the Yuchuanpu or its duly appointed Managing Director.

Whenever appointments are to be made or functions are to be defined of the technical employees on the Railway staff, as well as in the case of their dismissal, the Managing Director, or in his absence, his duly appointed representative, will act in consultation with the Chief Engineer and, in the case of disagreement, the matter will be referred to the Yuchuanpu, whose decision shall be final. After completion of construction the Imperial Chinese Government will retain the services of an Engineer-in-Chief who during the period of the Loan shall be a British subject.

Article 18.—During the construction of the Railway the Corporation will act as its Agents for the purchase of all materials, plant and goods required to be imported from abroad. For all important purchases of such materials, tenders shall be called for by the Managing Director; in the case of all tenders, indents and orders for the importation of goods and materials required on the terms most advantageous to the Railway. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

As remuneration for its services as Agents of the Railway during construction, the Corporation shall receive the sum of £35,000, half of which shall be paid when the construction work is half completed but not later than eighteen (18) months from the date of this agreement, and the other half upon completion of the line. This amount shall be regarded as commutation of all commissions to which the Corporation and its Agents would properly be entitled and of payments for all services rendered in the construction and equipment of the Railway in respect of the present Loan; but in the event of a further Loan being required under the provision of Article 15 hereinabove, then a further payment of commuted commission, proportionate to the amount of such supplementary Loan and calculated at the same rate as the commutation hereinabove mentioned, shall be made to the Corporation as commutation of its commission for all services in respect of construction.

In return for this commuted commission the Corporation as Agents shall be prepared to superintend the purchase of all foreign materials required for the construction and equipment of the Railway which shall be purchased in the open market at the lowest rate obtainable, it being understood that all such materials shall be of good and satisfactory quality. At equal rates and qualities goods of British manufacture shall be given preference over other goods of foreign origin. The Managing Director shall have the right, while paying the above stipulated commutation of commission to the said Agents, in respect of all purchases of foreign materials, to avail himself of the services



of other Agents in China or abroad should he see fit to do so.

Original invoices and inspectors' certificates are to be submitted to the Managing Director; all return commissions and rebates of every description shall be credited to the Railway; and all purchases made by the Agents on behalf of the Railway shall be supported by manufacturers' original invoices and inspectors' certificates.

No commission shall be paid to the Agents except as above provided; but it is understood that the Yuchuanpu or its duly authorized representative shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are required for general assistance and advice or for the inspection abroad of materials requiring supervision of technical experts.

With a view to the encouragement of Chinese industries, preference shall be given, at equal prices and qualities, over British and other foreign goods, to Chinese goods and materials manufactured in China. No commission will be paid on purchases of such materials and goods.

It is understood and agreed that after the construction of the line is completed, the Corporation will be given the preference for such Agency business during the currency of the Loan for the supply of foreign materials as may be required for the Railway, on terms to be hereafter mutually agreed upon.

Article 19.—Branch lines in connexion with the Railway mentioned in this Agreement, that may appear profitable or necessary later on, shall be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, and if foreign capital is required, preference will be given to the Corporation.

Article 20.—By the preliminary agreement dated October 15, 1898 (Kuang Hsu 24th Year, 9th Moon, 1st Day) participation of twenty per cent of the net profits of the Railway had been promised to the Corporation in remuneration for their general responsibility and services. In commutation of this participation in net profits, the Corporation is granted the right to retain £67,500 out of the proceeds of the Loan in instalments and on dates in proportion to, and based on, the terms of subscription to the Loan, as stated in the prospectus. No further payment in respect of commutation of profits will be allowed on any supplementary Loans.

Article 21.—After payment of interest and repayment of principal of the Loan for any current year, the Yuchuanpu shall deposit with the Hongkong and Shanghai Banking Corporation in Shanghai any surplus of the net revenue of the Railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Bank from time to time with due regard to the conditions of the market.

Article 22.—The Corporation may, subject to all its obligations under this Agreement, transfer or delegate all or any of its rights, powers or discretions thereunder to any British Company, Director or Agent, with power of further transfer and subdelegation, such transfer, sub-transfer, delegation or subdelegation, to be subject to the approval of the Yuchuanpu.

Article 23.—This Agreement is signed under authority of an Imperial Decree of this date which has been officially communicated to the Minister of Great Britain in Peking by the Waiwupu.

Article 24.—Three sets of this agreement are executed in English and Chinese, two sets to be retained by the Imperial Chinese Government and one by the Corporation; in the event of any doubt arising regarding the interpretation of the contract the English text shall rule.

Signed at Peking by the contracting parties this fourth day of the second month of the thirty-fourth year of the Emperor Kuang Hsu, being the sixth day of March nineteen hundred and eight.

Signed,  
HU HUI-TE,  
LIANG SHING-YI,  
KAO ERH-CH'EN.

[Seal of Waiwupu].

For the British and Chinese Corporation, Ltd.,  
J. O. P. BLAND,  
Representative in China.

#### PRELIMINARY AGREEMENT BETWEEN THE HONGKONG AND SHANGHAI BANKING CORPORATION AND DIRECTOR-GENERAL HU, RESPECTING THE PEKING-NEWCHWANG RAILWAY LOAN.

This is a preliminary Agreement made between his Excellency HU, Governor of Peking and Administrator-General of the Imperial Railways of North China within and without the Great Wall, hereinafter called the Administrator-General, of the one part; and the Hong Kong and Shanghai Banking Corporation, representing a British Syndicate, hereinafter called the Syndicate, of the other part.

1.—The Syndicate is hereby authorized by the Administrator-General to make arrangements to float and issue, on behalf of the Railway Administration, on the best terms obtainable on the market, a sterling loan for the equivalent of about 16,000,000 taels, for the construction of railway line from Chung-hou-sou to Hsin Ming-tien, and a branch line to Ying-tzu, and for the redemption of existing loans to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao lines.

2.—The security for the loan shall be the permanent way, rolling-stock, and entire property, together with the freight and earnings of the existing lines between Peking, Tientsin, Tangku, and Chung-hou-sou, and also of the proposed new lines when constructed, in addition to the rights of mining coal and iron, which will be retained by the Railway Administration on each side of the proposed new lines, for a distance to be determined. In the event of default or arrears in payment of interest or payments of principal, the said railway lines and mines shall be handed over to representatives deputed by the Syndicate, to manage them on their behalf, until principal and interest of the loan are redeemed in full, when the management will revert to the Railway Administration.

It will, however, be provided that if such arrears are for a small sum, and it appears desirable to the Syndicate to extend the due date of their payment for a term not exceeding three months, it shall be open to the syndicate to do so.

In the event of any special circumstances arising, necessitating the introduction of important changes by the management aforesaid, these changes shall be effected in consultation with the Administrator-General, and in the best interests of the railway. In the case of war or famine, troops and grain will be transported over the line on terms to be arranged hereafter.

No further loan, charge, or mortgage shall be charged on the security named above until this loan is redeemed.

3.—During the currency of the loan the principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railway, and may be, in the event of their misconduct or incompetency, dismissed, after consultation with the Chief Engineer. If there are Chinese, with sufficient engineering or traffic experience, they may be appointed as well as Europeans. Should it be necessary to appoint a new Chief Engineer, such appointment shall be made in consultation with the Syndicate.

In addition to above, a capable and experienced European Railway Accountant shall be appointed to inspect all the accounts of the railways.

All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually payable under the Board of Revenue's arrangement, approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of repairing and maintaining lines will be paid from this account, the remainder of which shall then be charged with the service of this loan.

4.—The rate of interest, price, term of years, and other particulars shall be left to the Syndicate to arrange, on the best terms possible, on the market, when the moment appears favorable for floating the loan. Instalments of proceeds will be arranged as far as possible to suit the progress of construction and the requirements of the Administrator-General, interest being calculated from the date of such payments. The loan will be redeemable by annual drawings to be scheduled in the final agreement. Besides the drawings so scheduled the Administrator-General may from time to time, on giving due notification to the Syndicate, call for extra drawings to be held, bonds so drawn being redeemed by the Railway Administration at 20 per cent. premium on their par value.

5.—If it shall be found that the loan cannot be floated without the introduction of some special attraction, the Administrator-General shall memorialise the Throne, recommending that a concession of mining rights be granted to the Syndicate at a point or points on the lines, and on terms to be arranged with the Syndicate

on the basis of the Mining Regulations newly established by the Tsung-li Yamen. The requests of the Syndicate will be confined to mines within a distance of 5 li of the railway.

6.—The date of issue of this loan shall be left to the discretion of the Syndicate, to be fixed in accordance with the state of the market, but should it be found impossible to issue it before the 1st day of October next, the Syndicate will arrange to advance to the Administrator-General, on or about that date, an instalment of about 2,000,000 taels on account of, and repayable out of the proceeds of the loan when floated. The terms of this advance shall be left to the arrangement of the Syndicate on the best terms obtainable, interest not to exceed the rate of 5½ per cent. per annum, and the Syndicate shall be authorized to issue temporary bonds for the amount if required.

7.—For the satisfaction of the investing public who are unacquainted with China a satisfactory report will be required from District Engineer, Mr. J. Ginnell, as to the condition and earning power of the old lines, and as to the route, prospects, and mineral wealth of the new lines to be constructed, and Mr. Ginnell shall be instructed by the Administrator-General to proceed to London as soon as possible after the signing of this preliminary Agreement, to confer with the Syndicate on these matters.

8.—The terms of this preliminary Agreement will, immediately after signature, be submitted by the Administrator-General to the Throne for sanction by Imperial Edict, which shall be officially communicated by the Tsung-li Yamen to the British Minister in Peking.

9.—Three months from the date of signature of this preliminary Agreement shall be allowed to the Syndicate to accept or decline its terms. Upon their confirmation by the Syndicate this preliminary Agreement shall be replaced by a definitive Agreement, providing for all details.

Signed at Peking, this 7th day of June 1898, being the 19th day of the 4th moon of the 24th year of the Emperor Kuang Hsu.

(Seal of Administrator-General of Railways within and without the Shan-hai-kuan boundary.

For the Hong Kong and Shanghai Banking Corporation,

(Signed) E. G. HILLIER, Agent.



# DEFINITIVE AGREEMENT BETWEEN THE BRITISH AND CHINESE CORPORATION (LIMITED) AND DIRECTOR-GENERAL HU RESPECTING THE PEKING-NEWCHWAN RAILWAY LOAN.

This agreement is made between His Excellency Hu, Governor of Peking, as Administrator-General of the Railways of North China within and without Shan-hai-kuan, acting under the authority of the Imperial Chinese Government, hereinafter called the "Administrator-General," of the one part, and the Hong Kong and Shanghai Banking Corporation, for themselves and on behalf of the British firm of Jardine, Matheson & Co., representing as joint agents the British and Chinese Corporation (Limited), hereinafter called the "Corporation" of the other part:

Whereas, on the 7th day of June 1898, being the 19th day of the 4th month of the 24th year of the Emperor Kuang Hsu, a preliminary Agreement was signed at Peking between the Administrator-General and the Hong-Kong and Shanghai Banking Corporation, representing a British Syndicate, for a sterling loan for the equivalent of about 16,000,000 taels, for the construction of a railway line from Chung-hou-sou to Hsin-ming-ting and a branch line to Ying-tzu, and for the redemption of existing loans made to the Tientsin-Shan-hai-kuan and Tientsin-Lu-kou-chiao Railway lines: and

Whereas in terms of the preliminary Agreement a period of three months from its date was allowed to the Syndicate to accept or decline its conditions: and

Whereas the Hong Kong and Shanghai Banking Corporation, before the expiration of the period named, duly notified the Administrator-General that it is prepared, with certain modifications, to arrange the issue of the loan upon the conditions named in the preliminary Agreement:

1.—The Corporation agrees to issue on behalf of the Administrator-General a sterling loan for the amount of £2,300,000, the proceeds of which are to be applied in the order following:—

(1).—To the redemption forthwith or at maturity of the loans and advances specified in the statement attached to this Agreement which have been made by foreign banks to the Tientsin-Shan-hai-kuan and the Tientsin-Lu-kou-chiao Railway lines. The Administrator-General hereby certifies that the total amount of the liabilities due by the lines named does not exceed the sum of 3,000,000 taels.

(2).—To the carrying out, within a period of three years from the date of this Agreement, of certain improvements and additions to rolling-stock on the existing lines between Peking and Shang-hai-kuan, recommended by the European Chief Engineer, and estimated by him to cost about 1,500,000 taels.

(3).—To the construction of a railway line from Chung-hou-so to Hsin-ming-ting, and one from a point on that line near Shih-san-chan to Ying-tzu, and of a branch line from Nu-er-ho to the collieries of Nanp'iao.

The Administrator-General engages that the construction of the new lines here specified shall be completed within a period of three years from the date of this Agreement.

2.—In the event of the proceeds of this loan being insufficient for the completion of the new lines here specified, the Administrator-General will provide or will arrange with the Imperial Government of China to provide funds from other sources sufficient to complete their construction.

3.—This loan shall be a first charge upon the security of the permanent way, rolling-stock, and entire property, with the freight and earnings of the existing lines between Peking and Shan-hai-kuan, and on the freights and earnings of the new lines when constructed. The Administrator-General shall, during the continuance of this loan, maintain the railway buildings, works, rolling-stock, and dependencies in good order and condition, and shall increase the rolling-stock from time to time to such extent as shall be necessary for the requirements of the traffic.

Should it be decided hereafter to construct branch lines or extensions connecting with the lines herein named, their construction shall be undertaken by the Railway Administration, and should the funds of the Railway Administration be insufficient for that purpose, it shall apply to the Corporation for the same.

4.—The principal and interest of this loan are guaranteed by the Imperial Government of China, and in the event of default in payment of interest or repayment of principal at due date, the Corporation shall immediately notify the Imperial Government of China thereof, and the Imperial Government of China will thereupon provide the funds necessary to meet such payment in sterling in London. In the event of the Imperial Government of China being unable to provide the funds necessary to meeting a payment of interest or principal when called upon by the Corporation to do so, in terms of this clause, the said railway lines and entire property shall thereupon be handed over to representatives deputed by the Corporation to manage, on their behalf, until principal and interest of the loan have been redeemed in full, when the management will revert to the Railway Administration. It is provided that should arrears of interest or principal be for a small sum, and it appear desirable to the Corporation to extend the due date of their payment for a term not exceeding three months, it shall be open to the Corporation to do so.

This arrangement, which differs from other contracts in that the Administrator-General retains control of the railway lines so long as the principal and interest of this loan are regularly paid, has been agreed to in consequence of the friendly relations which have long existed between the Contracting Parties.

5.—No further loan shall be charged upon the security named above, except through the Corporation, until the loan is redeemed; and the Tsung-li Yamen will hand to the British Minister in Peking a written undertaking on behalf of the Imperial Government of China, that the railway lines named in this Agreement shall never be alienated or parted with.

6.—During the currency of this loan the Chief Engineer of the railways shall be a British subject. The principal members of the railway staff shall be capable and experienced Europeans, who shall be, as at present, appointed by the Administrator-General of the Railways, and may be, in the event of their misconduct or incompetency, dismissed after consultation with the Chief Engineer.

If there are Chinese with sufficient engineering or traffic experience they may be appointed as well as Europeans.

Should it be necessary to appoint a new Chief Engineer; such appointment shall be made in consultation with the Corporation.

In addition to the above, a capable and efficient European Railway Accountant shall be appointed, with full powers to organize and direct the keeping of the railway accounts, and to act with the Administrator-General and the Chief Engineer of the railway in the supervision of receipts and expenditure.

7.—The railway lines named in the Agreement being Imperial Government lines, in the event of war or famine, Chinese Government troops and grain may be transported over the lines free.

8.—All receipts and earnings of the lines herein specified shall be paid into the credit of the Railway Administration with the Hong Kong and Shanghai Banking Corporation, Tientsin, together with 50,000 taels annually, payable under the Board of Revenue's arrangement approved by the Throne, by each of the provinces of Shansi, Shensi, Honan, and Anhui, for railway purposes for ten years.

All expenses of working and maintaining the lines will be paid from their receipts and earnings, the remainder of which, together with the provincial funds above named, shall then be charged with the service of this loan. Payments of interest and repayments of principal shall be made in equal monthly instalments, and in accordance with the amounts and dates of a yearly schedule which will be furnished to the Administrator-General by the bank. These payments shall be made by the Administrator-General to the Hong Kong and Shanghai Banking Corporation, Tientsin, in Hongping sycee sufficient to provide the sterling amount due to the bondholders in terms of the prospectus of the loan, the rate of exchange for these payments being fixed by that bank as each such

payment becomes due. In reimbursement of expenses incurred in connection with the distribution of the service to the bondholders of the principal and interest of the loan, the Hong-Kong and Shanghai Banking Corporation, Tientsin, shall receive from the Railway Administration a commission of  $\frac{1}{4}$  per cent. on the annual loan service, which will be included in the yearly schedule for the same.

9.—The term of the loan shall be forty-five years, and, subject to the modification mentioned hereinafter, repayment of principal shall be made, so far as regards the bondholders, in forty equal annual instalments, commencing with the sixth year.

10.—Interest on the loan shall be charged at the rate of 5 per cent. per annum on the nominal principal, and shall be calculated on the balance of such principal at any time outstanding, payments of interests being made by the Administrator-General in accordance with the amounts and dates specified in the yearly Schedule to be provided.

11.—The loan will be redeemed by annual drawings in London as provided for in the prospectus. Besides the drawings as provided for, the Administrator-General may, on giving three months notice to the Corporation, call for extra drawings to be held for any amount. Bonds so drawn to be redeemed by the Railway Administration at 20 per cent. premium on their par value. Any such extra drawings must take place on the date of the ordinary drawing provided by the prospectus.

In the event of such extra drawings taking place, subsequent payments of interest will be adjusted in the Yearly Schedule to be provided, but the repayments of principal shall continue unaltered in terms of clause 9 of this Agreement until the loan is redeemed.

The Imperial Government of China hereby engages that this loan shall not be redeemed or converted otherwise than as herein provided.

12.—The price agreed upon for this loan is 90 per cent. net of the nominal principal, but should an unfavorable state of the market prevail at the time of issuing the prospectus the Corporation is hereby authorized to reduce the price of the loan, at its own discretion, to not less than 88 per cent. net to the Railway Administration.

13.—The Corporation are hereby authorized to issue to subscribers to the loan bonds for the total amount of the loan in pounds sterling, in such form and for such amounts as shall appear desirable to the Corporation, and the Minister for China in London will seal all such bonds with his official seal, as evidence that the Imperial Government of China is bound thereby. Each such bond shall bear the following clause:—

"The Imperial Government of China, pursuant to an Imperial Edict, dated . . . . ., unconditionally guarantees and declares itself responsible for the payment of the principal moneys and interest hereby secured, and in faith thereof it has specially authorized the Chinese Minister in London to seal this bond with his official seal."

14.—All bonds and coupons and payments made and received in connection with this loan shall be exempt from Chinese taxes and imposts for ever.

15.—All details necessary for the prospectus and connected with the service to the bondholders of the interest and repayment of principal of this loan, not herein explicitly provided for, shall be left to the arrangement of the Corporation, who are hereby authorized to issue a prospectus of the loan as soon as possible after the signing of this Agreement.

The Tsung-li Yamen will instruct the Chinese Minister in London to co-operate with the Corporation in any matters requiring conjoint action.

16.—The loan shall be issued to the public as soon as possible after the signing of this Agreement, and shall date from the first day of the month of its issue. Payment of the entire proceeds will be made in London to the order of the Administrator-General not later than the 31st day of March 1899; of the above



proceeds the Corporation will advance to the order of the Administrator-General in London, on or before the 31st day of October next, the sum of £250,000; this advance will bear interest at the rate of 5½ per cent. per annum until such time as the first instalment of the loan proceeds shall be available, when it shall be deducted from those proceeds by the Corporation.

17.—In the event of an unfavorable state of the market rendering the issue of this loan, and the payment of its proceeds to the Railway Administration impossible on the terms named without loss to the Corporation, the Corporation shall be granted such extension of time for the performance of its contract with the Administrator-General as the circumstances demand, any advances or instalments of proceeds already made to the Railway Administration being in that case treated as regards payment of interest, repayment of principal,

security, and Imperial Chinese Government guarantee in terms of this present Agreement, and as forming part of the principal amount of this loan. Similar extension of time for the issue of this loan and payment of its proceeds shall also be granted in the event of the Deutsche-Asiatische Bank, Berlin, objecting to its issue before the month of April next, in accordance with the terms of clause 9 of the Agreement for the Chinese Imperial Government 4½ per cent. Sterling Loan of 1898.

18.—Immediately after the signature of this Agreement, and before the issue of the prospectus of the loan to the public, the Administrator-General will memorialise the Throne and obtain an Imperial Edict confirming and sanctioning the provisions of this Agreement, the Imperial Edict so received being then communicated officially and without delay by the

Tsung-li Yamen to the British Minister in Peking.

19.—The Corporation may, subject to all its obligations, transfer or delegate all or any of its rights and discretions to any British Company, Directors, or Agents, in consultation with the Administrator-General, with or without power of further transfer and sub-delegation.

20.—This Agreement is executed in quadruplicate in English and Chinese, one copy to be retained by the Administrator-General, one by the Tsung-li Yamen, one by the British Minister in Peking, and one by the Corporation. Should any doubt arise as to the interpretation of the contract, the English text shall be accepted as the standard.

Signed at Peking by the Contracting Parties this 25th day of the eighth month of the twenty-fourth year of the Emperor Kuang-Hsu, being the 10th day of October 1898, Western Calendar.

# GREAT BRITAIN AND GERMANY

## TIENTSIN-CHINKIANG (NOW NANKING) RAILWAY; PRELIMINARY AGREEMENT.

This Preliminary Agreement relating to the construction of railways between Tientsin and Chinkiang, is made between their Excellencies Hsu and Chang; duly authorized to act on behalf of the Imperial Government of China, hereinafter called "the Imperial Directors" of the one part; and (a) the Deutsche-Asiatische Bank; (b) the Hongkong and Shanghai Banking Corporation for themselves and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, hereinafter called "the Syndicate" of the other part.

1. The Imperial Government of China authorizes the Syndicate to issue an Imperial Government 5 per cent. gold loan for an amount of about £7,400,000, this amount being subject to modification later after the completion of survey.

2. The loan is designed to provide the capital for the construction of Government railway lines from a point at or near Tientsin, through Titchow and Tsianfu to Tshien near the southern frontier of Shantung, hereinafter known as the northern part of the Tientsin-Chinkiang Railway lines, and from Tshien to Kuachao (Chinkiang) on the Yangtze Kiang, hereinafter known as the southern part of the Tientsin-Chinkiang Railway lines, the total length of these lines being about 982 kilom., equal to about 1,800 Chinese li.

3. The capital so provided will include the funds required for rolling-stock and other equipment, and for working the lines, together with interest on the loan during the period of construction, which is estimated to occupy about five years from the date of the loan, but which will finally be fixed after survey.

4. The rate of interest for the loan shall be 5 per cent. per annum on the nominal principal, and shall be paid during the time to be fixed for the construction out of the proceeds of the loan, and afterwards out of the revenue of the lines named, in half-yearly instalments, according to the amounts and dates of a schedule which will be attached to the Final Agreement.

5. The term of the loan shall be fifty years. Repayment of principal shall commence in the eleventh year from the date of the loan, and shall be made by a yearly sinking fund in shares to be determined in the Final Agreement to the Deutsche-Asiatische Bank, and the Hongkong and Shanghai Banking Corporation in yearly instalments out of the revenue of the lines according to the amounts and dates of the schedule to be attached to the Final Agreement.

6. In the event of the Imperial Government of China wishing to redeem, after the lapse of thirty years from the date of the loan, the outstanding amount of the loan, or any portion of it not yet due, from funds *bona fide* belonging to the Chinese Government or subscribed by Chinese merchants, the conditions for such redemption must first be arranged with the Syndicate when the time arrives.

7. The yearly payments due for amortization and the half-yearly payments due for interest, except as otherwise provided in Clause

4, shall be made in accordance with the amounts and dates of a schedule to be attached to the Final Agreement, in shares to be determined by the Final Agreement, out of the joint net revenues of the railway lines to the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation by the Boards of Commissioners hereinafter mentioned, who shall hand to those banks, at their branches in Shanghai, twenty-one days before the due date named in the schedule, funds in Shanghai sycee sufficient to meet such payment in sterling in Europe, the rate of exchange for which shall be settled with those two banks on the same day on a fair basis.

In reimbursement of expenses connected with the service of interest and principal of the loan, the two banks will receive a commission of ½ per cent. on the annual loan service.

8. The Imperial Government of China hereby engages that the interest and principal of this loan shall duly be paid in full, and should the revenues of the railways not be sufficient to provide for the due and full payment of interest and repayment of principal of this loan the Imperial Directors must memorialize the Throne, and the Imperial Government of China will then make arrangements to ensure that the amount of deficiency shall be met from other sources and handed over to the banks twenty-one days before the due date of the funds required to complete full payment of interest and repayment of principal.

This clause to be open to reconsideration in the Final Agreement.

9. This entire loan shall be secured by a first mortgage on the permanent way, rolling-stock, and entire property, together with the revenue of the lines named in Clause 2. No further loan, charge, or mortgage shall be charged on this security, except with the written consent of the two banks, until the present loan is returned. In the event of default in payment of interest or repayment of principal of this loan on due date the railway lines and property so mortgaged shall be handed over to the Syndicate, to be dealt with in such a manner as may be legal and necessary for the full and effective protection of the bondholders. When the loan is completely redeemed, Clause 29 of this Agreement shall take effect.

10. The Syndicate will be authorized to issue to the subscribers to the loan, bonds for the total amount of the loan in pounds sterling in such form, in such languages, and for such amounts as shall appear advisable to the Syndicate, and these bonds shall be sealed in China by the Imperial Directors and in Europe by the Minister for China, in Berlin or London, as evidence that the Imperial Government of China is bound thereby as debtor of the loan. Provision will be made in the Final Agreement for the case of bonds lost, stolen, or destroyed.

11. All bonds and coupons and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imports for ever.

12. All details necessary for the prospectus and connected with the service of the interest and repayment of the principal of this loan, not explicitly provided for by the Final Agreement, shall be left to the arrangement of the Syndicate, who will be authorized to issue a prospectus of the loan as soon as possible after the signing of the Final Agreement.

The Imperial Government of China will instruct the Chinese Ministers in Berlin and London to co-operate with the representatives of the Syndicate in any matters requiring conjoint action, and the Chinese Minister in Berlin will sign the prospectus of the loan as required by the Rules of the Berlin Stock Exchange.

13. The loan shall be floated in one or more series at the discretion of the Syndicate, due regard being had to the interest of China; but the floating of the loan shall not be delayed more than necessary, subscriptions being invited by the Syndicate in Europe and in China from both European and Chinese on equal conditions.

14. The price of the loan shall be 90 per cent. net on the nominal principal to the Chinese Government. The proceeds of the loan shall be paid to the credit of a Tientsin-Chinkiang Imperial Government Railway account with the Hongkong and Shanghai Banking Corporation, London. The payment into the credit of these accounts shall be made in such instalments and on such dates as the conditions allowed to the subscribers to the loan shall admit.

Interest at a rate to be arranged from time to time shall be granted on the credit balance of the railway accounts.

After deduction of the funds required for the service of interest and for commission on this service during the time of construction, the Deutsche-Asiatische Bank will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the northern part of the Tientsin-Chinkiang Railway lines, and the Hongkong and Shanghai Banking Corporation will hold the proceeds with accrued interest to the order of the Board of Commissioners appointed for the southern part of the Tientsin-Chinkiang Railway lines. The Commissioners, in drawing the sums necessary for the construction, shall give notice to the banks fourteen days before the day on which they are required.

15. If during the time of construction the whole amount of the instalments with accrued interest to be paid by the Syndicate should, after deduction of the sums necessary for the service of interest on the loan, not be sufficient for the construction of the railway lines, the amount of deficiency shall be provided by a supplementary loan to be issued by the Syndicate, the interest and other conditions of which are to be the same as in this Agreement, but the price must be arranged when the time arrives.

If after the completion of the lines there should be a balance at credit of the Tientsin-Chinkiang Railway account, the Syndicate shall transfer such unused balance to the credit



of the loan service reserve fund, hereinafter mentioned as a provision for payments to which the Government is bound by Clause 8 of this Agreement.

16. If before the publication of the prospectus for the issue of the loan any political or financial crisis should take place in Europe or elsewhere, by which the markets and the prices of existing Chinese Government stocks are so affected as to render the successful issue of the loan impossible on the terms herein named, the Syndicate shall be granted such extension of time for the performance of their contract as the circumstances demand, or shall have the right to withdraw from their contract with the Chinese Imperial Government, which shall in that case become null and void.

17. The Deutsche-Asiatische Bank on the one side, and the Hongkong and Shanghai Banking Corporation for themselves, and on behalf of Messrs. Jardine, Matheson & Co., as joint agents for the British and Chinese Corporation Limited, on the other side, shall take the loan in shares to be agreed upon by the Syndicate, and without responsibility for each other.

18. The northern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the Deutsche-Asiatische Bank, and the southern part of the railway lines shall be constructed, equipped, and worked on behalf of the Imperial Chinese Government by the British and Chinese Corporation Limited, under conditions as follows:—For each of these parts a Board of Commissioners shall be appointed to superintend the construction, equipment, and working of the railway lines in accordance with regulations to be arranged between the Imperial Directors and the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited.

19. An office shall be provided for the Imperial Directorate, and a head office shall be established for each Board of Commissioners. The Board of Commissioners for the northern and southern parts of the lines respectively, appointed to superintend the construction and administration, shall each consist of five members, two Chinese managers representing the Imperial Directors and nominated by them, and three European members, namely, a representative of the Bank concerned, the manager and the Chief Engineer, to be nominated by the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited.

In case any foreign or Chinese members of the Boards of Commissioners do not work well together, it shall be open to the Imperial Directors, the Deutsche-Asiatische Bank, and the British and Chinese Corporation Limited, to mutually discuss means to arrange and deal with the matter.

The foreign and Chinese railway staff, including a *Ti-tiao*, shall be appointed by the Boards of Commissioners, who will report the appointment to the Imperial Directors. In the event of an important appointment the two Chinese members of the Boards may first consult the Imperial Directors.

The principal members of the railway staff shall be capable and experienced Europeans, but Chinese with sufficient experience in engineering or traffic may also be appointed.

Foreign and Chinese members of the railway staff shall, in the event of incapacity or misconduct, be dismissed by the Boards of Commissioners, who will inform the Imperial Directors of the same.

The salaries of the five members of each Board of Commissioners and of the foreign and Chinese railway staff shall be arranged by the Deutsche-Asiatische Bank, the British and Chinese Corporation Limited, and the Imperial Directors, and paid by the head office of their respective sections.

20. The plans, estimates, and all matters relating to survey must be submitted for approbation to the Board of Commissioners. The Chief Engineer shall indicate to the Chinese Commissioners the land which it is necessary to purchase, and which must be sufficient for the construction of a permanent way with

double lines and dependencies, and the Chinese Commissioners shall thereupon effect such purchases at a price to be based on a scale to be arranged after survey. In the event of the route proposed by the Chief Engineer passing through towns, villages, graveyards, or other points where much obstruction is encountered, the Chief Engineer will, together with the Board of Commissioners, consider means of diverting the proposed railway route in order to avoid difficulties.

21. After completion of the survey and due inquiry as to the prevailing provincial *likin* and customs dues, the Imperial Directors will arrange with the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, regulations for the payment of *likin* and duty upon merchandise and live stock in transit over the railway lines.

22. All materials necessary for the construction and working of the lines, obtained either from foreign countries or from other provinces of China, and the revenues derived from the railway, shall be exempt from duty or taxation of all kinds, and the Imperial Government of China will instruct the customs and *likin* authorities accordingly.

All material, plant, and goods shall be ordered from the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited, on conditions to be arranged in the Final Agreement.

The plans, estimates, and requisitions for materials shall be submitted to the Board of Commissioners by the Chief Engineer for reference at their discretion to the Imperial Directors, and the same shall be furnished by the Deutsche-Asiatische Bank and the British and Chinese Corporation on the best possible terms.

Due consideration will be extended to materials from the Hanyang Iron Works, if available when required, and of a quality satisfactory to the Chief Engineers of the Syndicate.

23. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall, during the working of the lines, maintain the railways, buildings, works, rolling-stock and dependencies in good order and condition.

24. Branch lines or extensions in connection with the Tientsin-Chinkiang Railway lines that may appear profitable or necessary later on shall be the subject of negotiations between the Imperial Directors and the Syndicate.

25. The tariff to be introduced by the European Manager shall be approved by the Boards of Commissioners, who will take into consideration the tariffs of other existing railway lines in China, while keeping in view the necessity for attracting traffic. The European Manager may also be instructed to enter into arrangements for tariffs on through traffic connecting lines. In case of war, foreign or internal, the railway lines shall be reserved in the first instance for the transport of Chinese troops, commissariat, and munitions of war under the order of Imperial Directors, and at half the ordinary tariff rates, and the railways shall not engage in any service injurious to China. In case of famine, grain will also be transported over the lines at half the ordinary tariff rate, under orders of the Imperial Directors.

26. All payments made and received in connection with the railway lines will be subject to the control of the Boards of Commissioners, and after the line is working estimates of receipts and expenditure shall be similarly submitted to the Boards. Regular accounts shall be furnished through the Imperial Directors to the Railway and Mining Bureau of the Tsung-li Yamen and the Board of Revenue, Peking. All payments made must be represented by Chinese or foreign vouchers as the case may be.

27. The profits from working completed sections of the railways during the time of construction shall be credited to railway construction account.

28. Should any traffic business be apparent later on as likely to benefit the Imperial Government of China and increase the earning power of the railway lines, the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall represent the same to the

Imperial Directors, and request them to obtain the necessary authority to arrange the business.

29. The Deutsche-Asiatische Bank and the British and Chinese Corporation Limited shall work the lines on behalf of the Imperial Government of China until the present loan is redeemed. As soon as the loan has been completely redeemed this Agreement shall become null and void, and the railway lines and property named in this Agreement shall be handed over to the absolute disposal of the Chinese Government.

30. The annual net revenue is understood to be that resulting from the gross receipts of the passengers and goods traffic and the income from other sources, after deducting all working expenses, including maintenance of the permanent way, repairs and renovation of machinery and rolling-stock, and all expenses of administration, besides deducting an amount to be determined by the Deutsche-Asiatische Bank and the British and Chinese Corporation Limited as sufficient for accumulating a reserve fund for extraordinary improvements or repairs. Of the surplus of the joint net annual revenue of the northern and southern railway lines, after payment of interest and repayment of principal of the loan, first, a participation of 20 per cent. will be granted to the Syndicate in remuneration for their management of the construction and the working of the railway lines; secondly, an amount equal to 10 per cent. of the gross earnings will be transferred to a loan service reserve fund, deposited with the two banks, and the remainder will be at the disposal of the Imperial Government of China. An account of the said loan service reserve fund will be rendered yearly to the Railway and Mining Bureau of the Tsung-li Yamen and to the Board of Revenue, and the fund will be drawn upon only in the case of the revenue of the railway lines being insufficient to meet the service of interest and principal of the loan. On redemption of the loan being completed the balance of this fund will revert to the Chinese Government.

31. The powers and authority given and delegated to the Imperial Directors by the Imperial Government of China shall, in the case of their promotion or removal, be transferred to their successors, and the Deutsche-Asiatische Bank and the Hongkong and Shanghai Banking Corporation, Messrs. Jardine, Matheson & Co., and the British and Chinese Corporation Limited, may, subject to all their obligations, transfer or delegate all or any of their rights, powers, and discretions to any German or English Company, directors, or agents, with or without power of further transfer and sub-delegation.

32. Differences arising between the Imperial Directors and the Syndicate will be taken up and decided with equity and justice by the Tsung-li Yamen on the one side, and the Minister for Germany and the Minister for Great Britain in China on the other side.

33. As soon as possible after the signature of this Agreement the Engineers of the Syndicate will be authorized by the Imperial Chinese Government to survey and report upon the proposed railway lines, when, subject to such report being satisfactory to the Syndicate, this Preliminary Agreement will be ratified by the Syndicate and replaced by a Final Agreement containing all necessary details. Modifications in the conditions of this Preliminary Agreement may be made, subject to the consent of both parties.

34. The provisions of this Preliminary Agreement shall, immediately after signature, be ratified by an Imperial Edict (\*) which shall be communicated by the Tsung-li Yamen to the Ministers for Germany and Great Britain in Peking.

35. Five sets of this Agreement are executed in English and Chinese, one set to be retained by the Tsung-li Yamen, one by the Railway and Mining Bureau, and one by each Contracting Party.

In the event of any doubt arising regarding the interpretation of the Contract, the English text shall rule.

(\*) The Edict was issued on the 24th May, 1899; vide Blue Book. China, No. 1 of 1900, p. 190.



## THE TIENTSIN-PUKOW RAILWAY LOAN AGREEMENT.

The following is a translation of the Agreement between the British and Chinese Corporation Ltd. and the Wai Wu Pu signed in Peking on Jan. 13, 1908, or the tenth day, twelfth moon, thirty-third year of Kwang Hsu:—

1.—The Chinese Government hereby sanctions the German and British Banks Syndicate issuing a loan for five million sterling, £5,000,000, 5% which shall be styled the "Chinese Government five per cent Tientsin-Pukow railway loan."

2.—This loan is to furnish the capital wherewith to construct a Government railway from the vicinity of Tientsin to connect the existing Peking-Shanhaikwan line via Techow, Chinanfu to Ihsien along the southern boundary of Shantung, and this line will hereafter be known as the northern section of the Tsin-Pu or Tientsin-Pukow line; and from Ihsien to Pukow on the bank of the Yangtze opposite Nanking which shall hereafter be known as the southern section of the Tsin-Pu railway. The total distance of the two sections is 1085 kilometers or equal to 2170 Chinese li. The survey of the line will be subject to revision by the Director General.

3.—The capital will be used for the construction of the line, the purchase of the land and rolling stock, and to meet the current working expenses of the line when in operation, also the payment of the interest on the loan while the line is being constructed. The period of construction calculating from the date of commencement is estimated as four years, such commencement to take place within six months of the signing of the agreement, and within this period the syndicate shall place £500,000 at the disposal of the Director General, the money to be drawn by him either in China or from Europe as a first instalment of the loan. The whole or part of this £500,000 shall be deducted with interest from the proceeds of the first sale of the bonds and bear interest not exceeding 6%.

4.—The interest of the loan, which is 5%, shall be payable from the date of issue of the loan and during the time of construction, payable half-yearly. It will be paid by the Chinese Government either from the proceeds of the loan or from other sources as considered advisable.

5.—The loan is made for a term of 30 years, the repayment to commence at the end of ten years, and with the exceptions noted in Art. 6 of this agreement the amortisation to the banks concerned, Deutsch Asiatische Bank, and Hongkong and Shanghai Banking Corporation, Ltd., shall be made in half-yearly instalments out of the revenue of the line or from such other source as the Chinese Government may decide, payment being made in all cases 14 days previous to the date due calculated from the date of issue.

6.—After the expiration of ten years the Chinese Government may if it so desire redeem the outstanding amount of the loan or any part of it any time before the twentieth year on the payment of a premium of 2½%, or £102 10s. on every £100 bond. After the twentieth year redemption can be made without premium, but in any case six months' notice must be given by the Chinese Government, and the method of redemption shall be by the drawing of additional bonds at each ordinary drawing.

7.—The Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation having been appointed representatives for the loan by the British and German companies to receive the half-yearly payments due for amortisation and interest, referred to in Articles 4 and 5, they shall be made, in accordance with the amounts and dates attached to this agreement by the Director General of the Railway, in Shanghai or in Tientsin, in Shanghai or Tientsin Sycee sufficient to meet such payments in gold in Europe, exchange for which shall be settled with the said Banks on the same day. The railway administration may arrange exchange within six months previous to any due date for the repayment of interest and principal. Payment can be made in gold if the Chinese Government have gold funds in Europe, not remitted from China for the purpose, and desire so to use them.

The Hongkong and Shanghai Banking Corporation and Deutsch Asiatische Bank will receive a commission of one quarter per cent for their expenses as Agents.

8.—The Imperial Government of China engages that the interest and principal of this loan shall duly be paid in full, and if the revenue of the Railway or the proceeds of the loan do not suffice for full payment, the Director General shall memorialise the Throne on the amount of deficiency and make payment to the Banks on the date upon which funds are required.

9.—The loan is secured in the following manner:—

1. By lekin and internal revenues of the province of Chihli, 1,200,000 Haikuan Taels a year:

2. By lekin and internal revenues of the province of Shantung 1,600,000 Haikuan Taels a year, and

3. By the revenue of the Nanking Lekin Collectorate 900,000 Haikuan Taels a year and of the Huai-an Native Customs 100,000 Haikuan Taels a year in the province of Kiangsu.

The provincial revenues as above are declared free from all other loans, charges or mortgages.

So long as principal and interest of the loan are regularly paid, there shall be no interference with these provincial revenues. If principal or interest of the loan be in default at due date, then, after a reasonable postponement internal revenues of the three provinces sufficient to provide the amounts above stated shall forthwith be transferred to, and be administered by, the Imperial Maritime Customs, in the interest of the bondholders. And so long as this loan or any part thereof shall remain unredeemed, it shall have first claim over all future loans, on the above mentioned revenues of the three provinces. It is understood and agreed that so long as this loan is unredeemed the Railway shall under no circumstances be mortgaged nor its earnings given as security to any other object.

Should the Government decide to revise the Customs tariff with the view of abolishing likin, this agreement will not oppose such revision except that the likin required as security for the loan must not be decreased or abolished without previous arrangement with the Syndicate and after other source of revenue has been guaranteed.

10.—The Syndicate is authorized to issue bonds for the total amount of the loan and the form of the bonds shall be arranged in consultation with the Director General or the Chinese Ministers in London and Berlin. The bonds shall be printed in Chinese and English or Chinese and German and be signed by stamp of the Director General and his seal, the Chinese Minister in London or Berlin shall also put his seal upon each bond with his signature, as a proof that the sale of the bonds is authorized by, and is binding upon the Chinese Government. The representatives of the Syndicate in London and Berlin shall counter-sign the bonds as agents.

In the event of bonds being lost, or destroyed, the Syndicate shall notify the Director General and the Chinese Minister in London and Berlin, who shall authorize the Syndicate to insert an advertisement in the public newspapers notifying that payment of the same has been stopped according to the customs of the country concerned, and if the bonds are not recovered, the Director General, or the Chinese Minister in London or Berlin, shall issue duplicate bonds.

11.—All bonds and payments made and received in connection with the service of this loan shall be exempt from all Chinese taxes and imposts during the currency of this loan.

12.—The Syndicate is authorized to issue the regulations of the loan as soon as possible after the signing of this agreement, and the Chinese Government will instruct the Chinese Ministers in London and Berlin to assist the Syndicate in any matters connected therewith and to sign the regulations of the loan.

13.—The loan will be issued in two or more instalments of bonds, the first issue of £3,000,000, as soon as possible after the signing of this agreement and not later than twelve

months from the date. The price to the Imperial Chinese Government of the first instalment shall be ninety three per cent of the face value. Further issues shall be effected in time to prevent any delay of the work of construction, in amounts to be determined by the Director General, and the price payable to the Chinese Government in respect of these series shall be the same rate as to the public, less charges of 5½ points by the Syndicate. Subscriptions will be invited by the Syndicate in Europe and in China both from Chinese and Europeans on equal conditions, preference being given to the application of the Chinese Government if application is made before the issue of the regulations.

14.—The income of the loan shall be paid to the account of Tientsin-Pukow Government Railway with the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank in China, London or Berlin, as the case may be. Interest at the rate of 4% shall be granted on the portion of this account kept in London and Berlin, and interest on the portion kept in China will be allowed at the Banks' rates for current account or fixed deposits, as may be arranged. In addition to interest and commission the Banks will hold the funds for the Director General, who shall not draw more than £20,000 without giving the Banks ten days notice. Expenditure of funds shall be in amounts to suit the progress of construction of the railway by orders on the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, signed by the Managing Director of the Railway or, in his absence, by his representative, and accompanied by his certificates stating the nature and cost of the work to be paid for.

Such amounts as may be required in China may at any time be transferred by the Managing Director, at his discretion, to Shanghai, the transfers being effected through the Hongkong and Shanghai Banking Corporation and the Deutsch Asiatische Bank respectively, and the transferred funds shall remain on deposit with those Banks until required for Railway purposes.

The accounts of the Railway will be kept in Chinese and English in accordance with modern methods, and will be supported by all necessary vouchers. During the period of construction the accounts will be open at any time to an inspector appointed and paid by the Syndicate. His duty will be to certify the due expenditure of the funds in accordance with the provisions of Article 3 of this Agreement. The Railway Administration will publish annually at the end of the financial year a report in Chinese and English of the working accounts and receipts of the railway, which report may be purchased by the public on application.

15.—If during the time of construction the proceeds of the present loan should not be sufficient to complete the construction and equipment of the line, the deficiency shall be provided, in the first place, from such Chinese funds as may be available so as to permit continuance of the work, any balance then uncovered being supplemented by a further foreign loan for the amount required, to be issued by the Syndicate. The interest and other conditions of such supplementary loan will be the same as in the present agreement. If after the completion of the line there should be a balance at credit of the railway account, such unused balance will be transferred to the credit of the interest reserve fund mentioned in Article 21 as a provision for payments for which the Imperial Chinese Government is responsible under this agreement.

16.—If, before the first sale of the bonds, any political or financial event should take place causing the prices of Government stocks to fall so as to make the successful issue of the loan impossible on the terms named, the Syndicate shall be granted further extension of time, but not beyond eighteen months from the date of this agreement. If within this time limit the first bonds have not been issued, then this contract shall become null and the money paid by the Syndicate under the provisions of Article 3 shall be by the Chinese Government with interest, but without any



other compensation or remuneration whatsoever.

17.—The construction and control of the railway will be entirely in the hands of the Imperial Chinese Government. For the work of the northern and southern sections respectively the Chinese Government will select and appoint fully qualified German and British Chief Engineers, acceptable to the Syndicate. These two Chief Engineers shall be under the orders of the Managing Director, or his duly authorized representative, and will carry out all the wishes of the Railway Administration with regard to the plan and construction of the line. They must pay all due respect to the Director General and the Managing Director. The terms of their respective agreements will be arranged by the Director General on his sole authority.

On the completion of the line the Imperial Chinese Government will administer both sections as one undivided Government Railway and will appoint an Engineer-in-Chief, who during the period of the loan shall be a European, without reference to the Syndicate.

18.—For all important purchases of railway materials tenders shall be called for by the Managing Director; and the Banks and Syndicate as Agents shall purchase the materials required on the terms most advantageous to the Railway, and shall charge the original cost of same with a commission of five per cent. It is understood that no orders for materials shall be executed or any expenditure incurred without due authorization by the Managing Director.

The Railway Administration shall have the right to reject on arrival in China materials which do not come up to specifications. At equal rates and qualities goods of German and British manufacture shall be given preference over other goods of foreign origin for the northern and southern sections respectively. The Railway Administration reserves the right, while paying the above stipulated commission to the said Agents in respect of all purchases of foreign materials, to avail itself of the services of other Agents in China or abroad should it see fit to do so.

No commission shall be paid to the Agents except as above provided; but it is understood that the Railway Administration shall provide out of Railway funds for the remuneration of Consulting Engineers whenever their services are engaged.

With a view to the encouragement of Chinese industries, preference will be given, at equal prices and qualities, over British, German or other foreign goods to Chinese materials, and goods manufactured in China. No commission will be paid on purchases of such materials and goods.

19.—Branch lines in connection with the railway line mentioned in this Agreement may be built by the Imperial Chinese Government with funds at their disposal from Chinese sources, if thought advisable, and if foreign capital is required preference will be given to the Syndicate.

20.—The Syndicate is granted the right to retain two hundred thousand pounds sterling (£200,000) out of the first issue of the bonds

instead of 20% of the profits of the railway as first proposed. No further payment in respect of profits will be allowed on any subsequent series of the loan, or on any supplementary loan.

21.—After payment of interest and repayment of principal of the loan for any year, the Railway Administration will deposit with the Deutsch Asiatische Bank and the Hongkong and Shanghai Banking Corporation in Shanghai or Tientsin any surplus revenue of the railway line for that year up to the amount required to pay the following year's instalments of interest on the loan; the rate of interest on the deposit being arranged with the Banks from time to time with due regard to the conditions of the market.

22.—The Deutsch Asiatische Bank and the Syndicate may transfer or delegate all or any of their rights, powers, and discretions thereunder to any German or British Company, Directors or Agents with power of further transfer subject to the approval of the Director General.

23.—This Agreement is signed under authority of an Imperial Edict dated the tenth day of the Twelfth Moon of the 33rd year of Kuang Hsu, corresponding to the 13th day of January one thousand nine hundred and eight, Western Calendar, which has been officially communicated to the Ministers of Great Britain and Germany in Peking by the Wai Wu Pu.

24.—Five sets of this Agreement are executed in English and Chinese, three sets to be retained by the Imperial Chinese Government and two by the Syndicate. In any case of dispute the English text will be taken as correct.

## GERMANY-CHINA

REGULATIONS FOR THE KIAO-CHAO AND TSINANFU RAILWAY. SIGNED MARCH 21, 1900. (TRANSLATED FROM CHINESE.)

ARTICLE 1. According to the second clause in the Second Section of the German-Chinese Convention after the Tsaochou Mission Affair, the building of a railway line from Kaiochou to Tsinanfu by a Chino-German Company is sanctioned, and in this Company, both German and Chinese subjects shall be at liberty to invest money.

At first, the management of this Company shall rest with the Germans, temporarily. A report of the shares taken up by the Chinese shall be made every six months to the Shantung Bureau of Foreign Affairs, and as soon as these shares shall exceed the amount of Tls. 100,000, the Governor of Shantung shall appoint a satisfactory official to become a member of the company and assist in clearly defining the regulations.

ART. 2. If said Company shall hereafter establish any branch office within the Province of Shantung, this Province will then appoint a satisfactory Chinese official for said branch office to assist in matters of consultation and operation.

ART. 3. The Governor of Shantung shall appoint a special official to assist in the locating of the railway; the high local officials or prominent gentry of various places will also be invited to assist. This will be done in order that the conditions of the various places may receive no injury. But as to scientific questions, these shall all be settled by the Engineer, and in all matters relating to the buying of land, the specially appointed official must be consulted. When the route has been investigated, the Company must prepare a map of the line showing all the conditions, the scale to be 25,000 to 1, which map is to be handed in to the Governor of Shantung, after which the matter of buying the land will be considered, and as soon as the land is all purchased, the work on the construction can begin. But as to the buying of the land, this matter must be managed as heretofore, with uniform promptness and peacefulness, that the owners of land may have no excuse for putting obstacles in the way, which would result in delaying the work. The Company will be permitted to buy only so much land as is actually needed in the construction of the railway, including what will afterwards be needed for the operation of the line. For small car-housing stations, it will

be permitted to buy a piece of land about 630 metres long (1 meter = 2 ft. 9.6 in. official measure, and 1 ft. official measure = 338 millimeters), and about 70 metres wide. For large car-housing stations it will be permitted to buy a piece of land about 730 metres long and about 100 metres wide. For railway stations of medium size a piece of land 850 metres long and 130 metres wide can be bought adjoining the walls (of the cities). For large railway stations the amount of land that can be bought will depend upon the special conditions of the case, except only that the necessary amount shall be the limit. When it is necessary, however, to buy earth to use in making fills or elevations, it will not be understood that this must all come from within the limits set down above.

ART. 4. In the construction of the line, whenever the Company finds a place upon its land where a space should be left for water to flow—whether a bridge should be built or a sluice opened—they must leave satisfactory space for the flow, in order that no harm or hindrance shall come to the populace or their fields.

ART. 5. The railroads must not injure or obstruct any city walls or public works with the Province, nor any important strategical positions that may be used for protection.

ART. 6. In constructing the railway, the Company must go around small villages and market towns, also ancestral halls, temples, grave-yards, dwellings, and water-ways, orchards and vegetable gardens. These must not be made to suffer on account of the railway. And as for specially large and well arranged grave yards, these must receive special regard. In cases where it is impossible to avoid them, the matter should be thoroughly looked into and discussed by both parties, and the high local officials must be requested to give two months' notice to the owner of the property, that he may construct a new grave yard at another place modeled after the original one. Any person in such a case, moreover, must not be subjected to any financial loss.

ART. 7. In buying land the Company must use the Chinese units "kung" and "ch'ih" for measuring, one "kung" equalling five "ch'ih." (1 ch'ih = 338 millimeters, and in any locality one "mu" = 360 "kung" or 9000 square "ch'ih"). The Provincial Treasurer will furnish standard

lengths for the "kung" and "ch'ih," that both parties may be guided by them. As to the Government tax, that matter will be dealt with in the same manner as is done in other parts of China where foreigners have bought land for the construction of railways.

ART. 8. In transporting materials and men for the measurement and survey of the land, the Company must keep off of the fields and vegetable gardens of the people, and in case where real damage has been done by trampling on the fields, and action therefor is brought, the Company will be required by the local high officials to make good the loss, out of pity for the abused party.

ART. 9. Whenever the local officials are requested to appoint someone to assist the company, said company must provide such person with money for meals; and this money must be kept in an entirely different account from that in which the money is kept for the purchase of land from the owners. The latter should be handed over to the local officials, to be received by them and handed over in turn to the owners. At the same time the local officials must send the Company a certificate of purchase for the land.

ART. 10. If the Company desires to rent any buildings or rooms along the line of the railway, they must first notify the high local officials, whereupon the said officials will consult with the owners and draw up a contract for the rent on behalf of the Company.

ART. 11. All materials necessary for the construction of the railroad must be bought at the market price, and a fair price given therefor; or else the local officials may be requested to buy them for the Company.

ART. 12. All silver and other money used by the Company must be exchanged justly at the rate of the place at the time.

ART. 13. The Company will not be permitted to act upon its off from the main line to connect with the mines, for the purpose of bringing down rock, lime, etc., such, for example, as the branch line at Poashan Hsien connecting with the main line—such roads will not come under this prohibition. But whenever it is desired to build one of these short branch lines, permission must first be requested from the Governor of Shantung, that he may investigate the matter.



ART. 14. All section men appointed by the Company within the limits of Shantung Province must be provided with passports sealed by the officials of both countries. This is to assist the local officials in giving protection. Without such passport they can not assume the responsibility of protection.

ART. 15. All Chinese or Germans employed by the Company must be supplied with special certificates to that effect; sealed both by the local officials and the Company. This will facilitate the detection of imposters, when the road is being laid out, as well as when it is being constructed, it will be the duty of the Chinese officials to appoint men section by section, to accompany and assist (the railway employés) in looking after their things—such as wooden stakes, etc. Should any falsely assert himself to be in the employ of the Company, he shall be arrested and punished by the local officials.

ART. 16. Should it ever happen that it becomes necessary for soldiers to protect the railway outside of the 100 li zone (Kiao-chow concession) the Governor of Shantung shall detail such soldiers, and foreign soldiers can not be used. The Governor of Shantung having consented to use his utmost endeavors to protect the railway both in time of construction and operation, he must see to it that the railway receive no injury from bandits.

ART. 17. The object of constructing this line is solely the development of commerce, and it will not be permissible to transport foreign soldiers or munitions used by foreign soldiers to any place outside of the 100 li zone. If by any chance, the peaceful relations existing between China and any foreign Power become broken, the railway will still remain under the management of the Company, but the company must still observe the above rule. But if the offices are seized by an enemy, and the Company loses its control, then this Province will no longer assume the responsibility of protecting the line.

ART. 18. Should the Province be visited by famine or flood, so that it is necessary to send relief to the sufferers in the form of rice or clothes; or should there be any riot necessitating the use of soldiers, such soldiers (with their arms, provisions, and baggage) and such relief (as mentioned above) must be shipped at reduced rates according to such regulations as Germany has in her own country.

ART. 19. The Company must make satisfactory arrangement for the easy collection and receipt along its line, if such likin and

Customs duties as are collectible in the Province on merchandise and domestic animals. As to the erection of Custom Houses, etc., the Customs officials of this Province will first discuss with the Company the amount to be expended, after which that matter will be taken up.

ART. 20. In the construction of the railway, the Company must employ among their men, people who live in the various villages along the line; and the Company shall also trade with them, that they may not be left out in the cold as it were.

ART. 21. All Chinese employed by the Company outside the German concession shall, if they break the law, be tried by the high local officials; and when a local official notifies the Company that according to Chinese law, a certain man should be tried as an offender, said offender shall not be given improper protection, or be in any way screened by the Company. If there be any offenders or law-breakers among the foreigners employed, and action be brought against them, they shall be tried by foreign law, and it will be the duty of the Company to make a thorough investigation of the case, and not show undue favor.

ART. 22. Competent men must be picked for work on the road, and natives of the place must be used as far as possible. Moreover, the price to be paid for labor must depend upon the various conditions of the place. If the laborers get into quarrels with the people, it will be the duty of the Chinese officials to arrest them and deal with them according to the law.

ART. 23. After the completion of the road, special men shall be detailed to watch and repair the line. Old residents in the various respective districts—men who have considerable means—shall be intrusted with the hiring of these men, in order to guarantee that the men who are hired will all be peaceful and reliable characters. Moreover, those who are intrusted with the hiring of the men must obtain from the local officials certificates for the men they hire. This is for convenience in investigation.

ART. 24. After all work in connection with the railway is completed and the road is being operated according to regulation, should there be any accident resulting in the injuring of any Chinese or damaging their property, the Company must repay them for their losses according to the conditions. At all times notices must be conspicuously placed. Damages must be paid also for all losses or injury to life or property caused by error or carelessness in the handling of the trains. Before the road is

entirely completed, and when trains are running according to temporary schedule, this rule that damages must be paid for all losses or injury to life and property caused by error or carelessness in the handling of the trains, likewise holds good.

ART. 25. If there ever be any dangerous places in this province, such as flooded districts, fallen trestles, or damaged bridges, interfering with the operation of the railway, then these obstructions must be removed before the road can be operated again according to regulation.

ART. 26. If at any time, whether it be when the road is being located, constructed, or operated, the Company for some reason requests the Governor of Shantung to furnish soldiers for protection, it shall be his duty to investigate the matter immediately and grant the request, sending sufficient guard of soldiers to the place where they are needed. As to the amount of extra money which the Company shall pay such guards, this will be considered apart.

ART. 27. The title of and authority over all railroad lands outside the German concession, so far as they rested in the former owner originally, will revert from him to the Governor of Shantung. Title to, and authority over, the railroad lands within the German concession will revert to the German Governor.

ART. 28. The Chinese Government shall have the right to buy back this railroad in the future, but as to this matter, it will be considered separately later.

After the above articles have been adopted, signed, and sealed, they shall be sent to the Department and District officials, as well as to the various railway officials, that all may become familiar with them and act accordingly. Hereafter, if any alterations or additions are deemed necessary, they can be made only by consultation of the Governor of Shantung, or such competent and experienced officer as he may appoint, and the Company.

(Sgd.) YIN-CH'ANG,

*Manager of Railway and Mining Affairs,  
etc., etc., etc.*

YUAN (SHIH-K'AI),

*Vice-President Board of War, Governor  
of Shantung, etc., etc., etc.*

Kuanghsu, XXVIth Year, Second Moon, 21st Day. March 21st, 1900.

(Signed on the part of the Chino-German Co.  
by Schmidt and Michaelis.)

#### AGREEMENT BETWEEN CHINA AND GERMANY IN REGARD TO THE RAILWAY AND MINING CONCESSION IN SHANTUNG.

I. The Chinese Government sanctions the construction by Germany of two lines of railway in Shantung. The first will run from Kiao-chow and Tsinan-fu to the boundary of Shantung province via Wei-hsien, Tsinchow, Pashan, Tsechuen, and Suiping. The second line will connect Kiao-chow with Chinchow whence an extension will be constructed to Tsinan through Laiwu-hsien. The construction of this extension shall not be begun until the first part of the line, the main line, is completed, in order to give the Chinese an opportunity of connecting this line in the most advantageous manner with their own railway system. What places the line from Tsinan-fu to the provincial boundary shall take in *en route* is to be determined hereafter.

II. In order to carry out the above-mentioned railway work a Chino-German Company shall be formed, with branches at whatever places may be necessary, and in this company both German and Chinese subjects shall be at liberty to invest money if they so choose, and appoint directors for the management of the undertaking.

III. All arrangements in connection with the works specified shall be determined by a future conference of German and Chinese representatives. The Chinese Government shall afford every facility and protection and extend every welcome to representatives of the German Railway Company operating in Chinese territory. Profits derived from the working of these rail-

ways shall be justly divided pro rata between the shareholders without regard to nationality. The object of constructing these lines is solely the development of commerce. In inaugurating a railway system in Shantung, Germany entertains no treacherous intention towards China, and undertakes not to unlawfully seize any land in the province.

IV. The Chinese Government shall allow German subjects to hold and develop mining property for a distance of thirty li from each side of these railways, and along the whole extent of the lines. The following places where mining operations may be carried on are particularly specified along the northern railway from Kiao-chow to Tsinan, Weihsien, Pa-shan-hsien and various other points; and along the Southern Kiao-chow-Tsinan-Chinchow line, Chinchow-fu, Laiwuhsien, etc. Chinese capital may be invested in these operations, and arrangements for carrying on the work shall hereafter be made by a joint conference of Chinese and German representatives. All German subjects engaged in such works in Chinese territory shall be properly protected and welcomed by the Chinese authorities, and all profits derived shall be fairly divided between Chinese and German shareholders according to the extent of the interest they hold in the undertakings. In trying to develop mining property in China, Germany is actuated by no treacherous motives against this country, but seeks alone to increase commerce and improve the relations between the two countries.

If at any time the Chinese should form schemes for the development of Shantung, for the execution of which it is necessary to obtain foreign capital, the Chinese Government, or whatever Chinese may be interested in such schemes, shall, in the first instance, apply to German capitalists. Application shall also be made to German manufacturers for the necessary machinery and materials before the manufacturers of any other Power are approached. Should German capitalists or manufacturers decline to take up the business, the Chinese shall then be at liberty to obtain money and materials from sources of other nationality than German.

This convention requires the sanction of His Majesty the Emperor of China and His Majesty the Emperor of Germany. When the sanction of His Majesty the Emperor of China reaches Berlin the Agreement approved by His Majesty the Emperor of Germany shall be handed to the Chinese Ambassador. When the final draft is agreed to by both parties four clean copies of it shall be made, two in Chinese and two in German, which shall be duly signed by the Chinese and German Ministers at Berlin and Peking. Each Power shall retain one Chinese copy and one German copy, and the Agreement shall be faithfully observed on either side.

Dated the fourteenth day of the second moon of the twenty-fourth year of Kuang-Hsu (6th March, 1898).



# FRANCE

## MEMORANDUM ON RAILWAY AND MINING CONCESSIONS SECURED BY FRANCE AND FRENCH COMPANIES IN CHINA.—(TRANSLATION).

### I.—PROVINCES OF CHIHLI, OR HU-PEH AND HO-NAN.

#### *Line from Peking to Hankow.*

The Société d'études de chemins de fer en Chine, a Franco-Belgian syndicate in which the French element is represented by the big financial establishments of Paris and the big metallurgical industries of France, has received a concession for a railway from Peking to Hankow. The two contracts relating to this line, for a loan and for operating, are dated the 26th June, 1898. The line will have an extension of about 1,250 kilometers. It is being built and will be operated by the Société d'Études for the mutual profit and equal advantage of the French and Belgian parties.

The loan to be floated is 112,500,000 francs. It has been agreed that the French financial share shall be three fifths, that of Belgium two fifths. A first issue of 133,000 bonds of 500 francs 5% was made at Paris and Brussels on April 19, 1899. 226,800 bonds were subscribed for, 190,800 at Paris and 36,000 at Brussels. The product of this first issue will suffice to build 500 kilometers of which 300 in the north and 200 in the south, and which will be soon finished. 150 kilometers in the north are already being operated. The building of the remainder will be seen to by a second issue as soon as circumstances permit of it.

The Société d'Études has secured the right to work mines along the line and to make, for the use of these, branch lines.

A branch company has been organized under the name of "Société Franco-Belge de Recherches Minières en Chine" to work these mines.

### II.—PROVINCE OF SHAN-HSI.

#### *Line from Tai-yuan-Fu to Cheng-ting-Fu.*

The concession for this line was provided for by a contract between the Bureau of Commerce of the province of Shan-hsi and the Russo-Chinese Bank, said contract being approved by the Chinese Government May 21, 1898.

The length of the line is 246 kilometers from Tai-yuan-Fu to Cheng-ting-Fu where it will join the railway from Peking to Hankow. The line will open the very rich coal field of Ping-ting, and its exploitation should be remunerative. The concession contemplates the extension of the Tai-yuan-Fu line to the southwest. The system as above will measure from 500 to 600 kilometers and will be worth about 60 millions.

The French group in the Russo-Chinese Bank is entrusted with working this concession.

### III.—PROVINCES OF SHEN-HSI AND HO-NAN.

A Franco-Belgian syndicate secured, the 6th December, 1899, a concession for a line along the course of the Yellow river from Kai-feng-Fu, capital of Ho-nan—a future station on the Hankow-Peking line, to Ho-nan-Fu, with future extension toward Hsi-an-Fu, capital of Shen-hsi.

### IV.—PROVINCE OF HU-PEH.

The "Syndicat d'études industrielles et de travaux publics en Chine" secured in the month of March, 1899, a concession of the anthracite coal beds of Ainantzu, near Tsé-kiu.

### V.—PROVINCE OF KIANG-SU.

The same syndicate has secured, in the month of December, 1898, the concession of the coal beds of Yuan-shan, near Nanking.

### VI.—PROVINCE OF CHE-KIANG.

A local railway from Husé to Kiang-nan, near Hang-chou, at the southern end of the Grand Canal, has also been conceded in the month of February, 1898, to the "Syndicat d'études industrielles et de travaux publics en Chine."

### VII.—PROVINCE OF SSU-CH'UAN.

#### *Coal and Iron Mines.*

Following the researches of the Lyons mission to China, some capitalists and manufacturers had founded in 1897, under the name of "Syndicat franco-chinois de Tchong-King," a company for working the mineral wealth of Ssu-ch'uan. This company sent to Chung-king as its representative, M. Duclos, engineer, a former member of the Lyons mission, who in 1899 made a contract with the provincial Administration ceding to the syndicate the working of mines of coal and iron in different localities in the province. A capital of 10 million taels is provided for the working of these concessions, with faculty of raising it by instalments.

#### *Petroleum Deposits.*

The Bureau of the province of Ssu-ch'uan has given to a French company, the "Société française d'explorations minières en Chine," the right to prospect in this province for petroleum deposits which are believed to be very rich. This concession will necessitate a final exploitation contract for which purpose a French company will be organized.

#### *Ore Deposits.*

The French consulate at Chung-king secured in the month of July, 1899, from the Mining Bureau of Ssu-ch'uan, the signing of a contract under which it cedes to a company to be formed with French and Chinese capital the working of ore mines (gold, silver, copper, lead and iron) in the Tien-shan and Ma-kung districts.

### VIII.—PROVINCE OF KUEI-CHOU.

#### *Quicksilver Mines.*

By two contracts of March 17 and June 26, 1898, the Chinese Government has granted the "Société française d'explorations minières en Chine" the concession for working the quicksilver, coal and iron mines of the province of Kuei-chou and the works and blast furnaces of Tsing-ki. This company has ceded its rights to the "Compagnie anglo-française des mercures et concessions minières du Kouei-Tchou" organized with a capital of 7,750,000 francs.

Three-fifths approximately of the bonds, which were issued in March 1899, are held by French.

The enterprise is running at present.

### IX.—PROVINCE OF YUN-NAN.

#### *Railway from Laokay to Yun-nan Hsien.*

By a convention of the 9-10 April, 1898, the French Government secured for itself or for the Company chosen by it, the right to build a railway from Laokay (frontier of Tongking), to Yun-nan Hsien (450 kilometers), and a law of December 25, 1898, authorized the Government of Indo-China to grant a guarantee of interest to the Company which might become the grantees of this line.

In conformity with this law, the Governor-General of Indo-China signed the 15th June, 1901, with a syndicate of the principal financial houses of Paris, a convention for the building of the railway from Laokay to Yun-nan Hsien and for the working of the whole line from Haiphong to Yun-nan Hsien.

This convention was ratified by a law of July 5, 1901.

The principal provisions of the convention are the following:

The syndicate agrees to organize, within three months from the date of the passage of the law approving the convention between the Government of Indo-China and it, a stock company with a capital of 12,500,000 francs, to work the line from Haiphong to Laokay which is to be built by the Government of Indo-China, and for the purpose of building itself and working the railway from Laokay to Yun-nan Hsien. The company will receive from the colony a subvention of 12,500,000 francs and also a guarantee of three millions of francs payable during 75 years, for the bonds which it shall have issued for the purpose of building the railway.

Last July (1901) the "Compagnie française des chemins de fer de l'Indo-Chine et du Yun-nan" was organized, and the bonds have just been issued.

For the purpose of building the line from Laokay to Yun-nan Hsien, the company has negotiated with the "Régie générale des chemins de fer" and the "Société de construction des Batignolles," which have formed for this purpose the "Société de construction de chemins de fer indo-chinois" with a capital of 4 million.

The "Société de construction" has sent during the present month (October 1901) survey parties to Yun-nan for the final study of the line.

### X.—PROVINCE OF KUANG-TUNG.

#### *Railway from Pakhoi to the Si-kiang (West River).*

In the month of June, 1898, the French Government secured from China a promise that only a Franco-Chinese Company should have the right to build a railway from Pakhoi to a point to be determined on the Si-kiang, and, generally speaking, railways with Pakhoi as a starting point.

In December 1899, on the occasion of the delimitation of said territory at Kuang-chou Wan, the French Government secured from China a concession for a railway uniting a point on the bay of Kuang-chou to a point to be chosen on the east coast of the peninsula of Lei-chou in the neighbourhood of On-pu.

At the same time, the Chinese Government took the engagement to concede to a French-Chinese company the mines in the prefectures of Kao-chou, Lien-chou and Lei-chou.

### XI.—PROVINCE OF FU-KIEN.

#### *Arsenal of Fu-Chou.*

The French Government signed October 11, 1896, with the Chinese Government a contract for the sending of a French mission for the purpose of reorganizing the naval arsenal of Fu-chou. The contract provided also for the working, for the use of the arsenal, of the deposits of ores in the province.

The French mission, under the direction of M. Doyère, naval constructor, has been pushing its work since about five years.

# BELGIUM

## PEKING-HANKOW (LU-HAN) RAILWAY CONTRACTS. MAY 27, 1897, JULY 21, 1897. (TRANSLATION).

### LOAN FOR THE RAILWAY FROM LU-KOU-CHIAO TO HAN-KOW

(Provisional) contract between the Chinese Railway Company and the Société financière et industrielle belge en Chine, the following has been agreed upon:

ARTICLE 1. The Chinese Government has granted a concession for the railway line from Lu-kou-chiao, near the city of Peking, to Han-

kow, to the Chinese Railway Company, which has already a capital of thirteen millions of taels.

The said Company is authorized by the Imperial Government to negotiate a loan of four million five hundred thousand pounds sterling to be applied solely to the building and working of the line from Lu-kou-chiao to Han-kow; the provisions hereafter set forth must be observed

by the Chinese Railway Company as well as by the Société financière et industrielle belge en Chine.

ART. 2. Said loan, of a nominal value of four million five hundred thousand pounds sterling, with ten per cent discount, or a real value of four million fifty thousand pounds sterling, is agreed to by the Société financière et industrielle belge en Chine. It will be paid



four installments of one million twelve thousand five hundred pounds sterling, representing real value, and at the following dates:

First payment: January 3, 1898.

Second Payment: July 3, 1898.

Third payment: January 3, 1899.

Fourth payment: July 3, 1899.

These payments will be made into a Belgian bank of Brussels, chosen by the Chinese Railway Company which is at liberty to transfer this sum as it sees fit.

ART. 3. The loan agreed to by the Société financière et industrielle belge en Chine shall bear annual interest of four per cent. Said interest shall be paid in January and July of each year.

ART. 4. The Chinese Railway Company agrees to reimburse the loan provided for in the present convention, after the first ten years, in twenty annuities of two hundred and twenty-five thousand pounds sterling, repayable yearly after January 3, 1909.

The payment of interest and annuities will be made in China, into a bank designated by the Société financière et industrielle belge en Chine, and in conformity with the table of amortization annexed to the present convention.

ART. 5. With the authorization of the Imperial Chinese Government, the payment of interest and the refunding of the loan will be guaranteed by the railway line from Lu-kou-chiao to Han-kow as also by all the property and material connected therewith.

It is understood that the guarantees given for the loan provided for in the present convention, are reserved for the subscribers to the present loan and that the guarantees given for subsequent loans can nowise prejudice that now granted the Société financière et industrielle belge en Chine.

ART. 6. Except in case of force majeure, the work of building must be finished and the railway from Lu-kou-chiao to Han-kow put in operation before the expiration of five years, that is to say of 1903.

ART. 7. The contracting parties may not invoke a state of war existing in any part of the world not to keep their engagements. If said state of war should exist in China, the Belgian staff shall remain in the employ of the Chinese Railway Company, unless its assistance is asked for by the Imperial Chinese Government.

ART. 8. The Société financière et industrielle belge en Chine shall choose an experienced, reliable and honest engineer to represent it and who shall be charged with controlling the technical work; he shall, furthermore, be charged with drawing up plans and carrying them out under the exclusive authority of the General Director of the Chinese Railway Company, under whose direct orders he shall be. This Controlling Engineer will be under the absolute direction of the General Director of the Chinese Railway Company. The Chinese Railway Company reserves all rights of management of the railway. It will be responsible until the expiring of the present contract for the salary of this Controlling Engineer as fixed upon in agreement with the Société financière et industrielle belge en Chine.

ART. 9. The foreign staff needed by the Chinese Railway Company for building and operating the line, during the life of the present contract, shall be chosen and presented by the technical Controlling Engineer representing the Société financière et industrielle belge en Chine; it will be appointed by decision of the Director General of the Chinese Railway Company. The Chinese Railway Company is at liberty to settle for itself as regard its foreign staff, the form of engagement to be used, adopting long or short term contracts.

All the staff employed by the Chinese Railway Company and attached to the working of the line, with the exception of the Controlling Engineer, will be required to obey the Chinese delegates of the Director General of the Company and work harmoniously with all the Chinese and foreign staff of other nationalities, chosen and appointed by the Director General in any position, and this in the interest of the Chinese Railway Company.

If disputes arise between European and Chinese Agents, they shall be impartially settled

by the Director General, aided by the representative of the Belgian Company.

The Director General of Chinese Railways shall always be at liberty to designate foreigners of whatever nationality to inspect the works under way; the Belgian Company shall never have the right to prevent it.

Nevertheless, the duty of the persons so designated shall only consist in inspecting works and they shall never have the right to give orders to the staff employed in building and working the line. Such persons may likewise make reports to the Director General of Chinese Railways on the results of their inspections.

The staff employed in building and operating shall furnish all necessary facilities to foreigners entrusted with an inspection, and that in the interest of the Chinese Railway Company.

ART. 10. In case one of the foreign employés referred to in articles 8 and 9, irrespective of duties, should through carelessness, incapacity, disobedience of the orders of the Director General, insubordination, drunkenness, or bad conduct, be held to be unfit for the service the Director General shall have the right to cancel the contract and the dismissed agent shall leave at once the service of the Chinese Railway Company.

ART. 11. The materials necessary for the Chinese Railway Company, exclusive of all that can be manufactured in China or of that that can be manufactured there later on, shall be bought abroad.

The Director General shall decide, in consultation with the Controlling Engineer, the amount of materials to ask bids on; said quantity, however, shall never exceed fifty per cent of that required.

The award shall be made without any special favor for the Société financière et industrielle belge en Chine. If this Company agrees to furnish at perfect equality of conditions as to quality, price and carriage with those secured by the Chinese Railway Company, the Belgian Company shall have the furnishing of said materials; but if said Company is unable to supply under the above-mentioned conditions, the Chinese Railway Company will make its purchase where it likes; the Belgian Company shall in no way prevent it so doing.

As to the materials which cannot be divided in accordance with paragraph 2 of the present article (50 p. c. maximum asked for), if the Belgian Company agrees to furnish at perfect equality of conditions as to quality, price and carriage with those secured by the Chinese Railway Company, the furnishing shall be granted the Belgian Company; in the contrary case, the Chinese Railway Company shall in no way prevent it so doing.

The Chinese Railway Company reserves to itself the right to use all means it may deem good to inform itself as to the best prices for supplying all its materials, without the Belgian Company interfering in any way with its inquiries.

ART. 12. As a premium, the Chinese Railway Company will pay the Belgian Company a sum of five per cent on the net value, less the cost of transportation, insurance, etc., on all materials bought abroad. The materials for the branch from Lu-kou-chiao to Paoting is not subject to the premium provided for in the present article because nearly the whole amount of said materials has already been bought.

ART. 13. The taking over of material bought in Belgium will be in the factories making it and by a commission consisting of a delegate of the Chinese Railway Company and of a delegate of the Société financière et industrielle belge en Chine; in case of disagreement, these two delegates shall choose an umpire to decide the question. The expenses of the delegates shall be borne by the Company designating them. The expenses of the umpire shall be borne by the losing party.

ART. 14. The Société financière et industrielle belge en Chine and its chosen agent shall deal with no other persons or accept any other authority than the Chinese Railway Company. The latter, on its side, shall only recognize the Société financière et industrielle belge en Chine, established at Brussels, in 1897, to the conclusion of every other company.

During the life of the present contract, the Belgian Company shall in no wise be managed by manufacturers or subjects of other countries, and the Belgian Company shall not be at liberty to transfer this contract to any other country, nor to the subjects of another country.

ART. 15. If the provisions set forth in the present convention are regularly adhered to by the Chinese Railway Company, the Société financière et industrielle belge en Chine agrees, in case of necessity, to study means, in conjunction with the said Company, to secure to it special facilities for extending the terms of paying off the annuities and interest.

In case extensions are granted, the amounts which should have been refunded shall bear the same interest as that provided for the loan in the present convention.

If the Chinese Railway Company wishes to refund the whole loan before the date on which it falls due, it will be at liberty to do so and the interest will cease from the day of such refunding, and the contract shall be declared void from that day.

ART. 16. All the above provisions are agreed upon in the provisional contract made this day; this provisional convention is signed by the Director General of the Chinese Railway Company on the one part, and stamped with his seal, and, on the other part, by the two representatives of the Société financière et industrielle belge en Chine, and viséed for authentication by the Consul of Belgium at Han-kow.

Within two months from the date of signing of the provisional contract, the Chinese Railway Company and the Société financière et industrielle belge en Chine will sign again so as to confirm the provisional contract which shall then become final.

These formalities complied with, the contract shall receive the seals of Their Excellencies the Viceroys of Pechili and of Hu-Kwang, and also that of H. E. the Minister of Belgium, at Peking.

ART. 17. The present contract has been drawn up in the French and Chinese languages; when necessity arises for consulting the contract, the two texts, absolutely identical, shall both be authoritative.

Done at Wuchang, the 27 of the month of May 1897.

The Chinese Railway Company being represented by H. E. Sheng-Hsuan-Huai, its Director General.

The Société financière et industrielle belge en Chine being represented by MM. Masy and Rizzardi.

## II

### ADDITIONAL PROTOCOL TO THE CONTRACT RELATING TO THE LOAN FOR FOUR MILLION FIVE HUNDRED THOUSAND POUNDS STERLING FOR THE RAILWAY FROM HAN-KOW TO LU-KOU-CHIAO.

A provisional contract was made, at Wuchang, the twenty-seventh day of the month of May one thousand eight hundred and ninety seven (twenty-sixth day, fourth month, twenty-third year of the present reign) relating to the loan for the railway from Lu-kou-chiao to Han-kow.

Between

The General Company of Chinese Railways, established by Imperial decree of the twentieth October one thousand eight hundred and ninety six (fourteenth day, ninth month, twenty-second year of the present reign), and to which was granted, by the same decree, the concession for the said line, of the first part;

And the Belgian Company, established by authentic act dated the third March one thousand eight hundred and ninety seven, published in the *Moniteur Belge* (official paper) of the twenty-second, twenty-third March one thousand eight hundred and ninety-seven, of the second part.

This contract was authorized by Imperial decree of the twenty-fifth May one thousand eight hundred and ninety-seven (twenty-fourth day, fourth month, twenty-third year of the present reign). The decree of that date will be communicated to H. E. the Minister of Belgium at Peking through the Tsung-li Yamen.



The Chinese Railway Company, represented by H. E. Sheng, its Director General, duly authorized for that purpose by the above mentioned decree and the Belgian Company, represented by M. Alexis Dufourny, Chief Engineer, Director of the Ponts et Chaussées at Brussels, and by M. Edouard Walin, First class Engineer of the Ponts et Chaussées, Director of the Intercommunal Waterworks Company at Brussels, duly authorized on their side by the Belgian Company, authority confirmed by a telegram of H. E. the Belgian Minister at Peking, sign anew, in the name of the interested parties, the provisional contract according to the terms of article sixteen of the latter, so as to confirm it and make it final, and agree furthermore on the following:

ARTICLE 1. The above mentioned Belgian Company will make a complete study of the line from Han-kow to Lu-kou-chiao for the Chinese Railway Company; it undertakes to make the surveys, levelling, longitudinal and sectional cuts, to make all plans, drafts of masonry works, bridge, buildings, shops, stations and outhouses of whatever nature, as also the measurements and specifications, all charges for which are included in the forty-hundredths per cent. of additional interest mentioned hereafter in Article 3.

A similar study will be made for the rolling and fixed stock. But in conformity with article eight of the contract, the drafts and plans shall be successively submitted to the approval of the General Director. It is well understood that all these works are to be carefully done, without any omission; they are not to occasion any additional expenses.

Field work for the carrying out of the works must be finished within a year from the date of the conclusion of the last formalities of approval of the contract. They must be carried out with the necessary activity to permit of the embankment work being begun within six months of the above mentioned date.

ART. 2. The Belgian Company surrenders its right to a premium on materials, conferred on it by article twelve of the contract, and therefore said article is considered as void.

ART. 3. On the other hand, as compensation for the concessions mentioned above in Articles 1 and 2, and to guarantee its expenses of organization, mission abroad and issuing (the loan), inclusive of all disbursements whatsoever relating thereto, and finally its general expenses during the whole time of the loan, the Belgian Company shall receive an increase of forty hundredths per cent (four per thousand) on the rate of interest provided for in article three of the contract. This additional interest of four per thousand will be paid in the same manner as the yearly interest of four per cent; consequently the rate of interest of four per cent, together with all the general expenses, is raised, in effect, to four and forty per cent (4.40 p. c.). No charge whatsoever in excess of this rate of interest shall be asked for.

ART. 4. The payments provided for in article two of the contract shall be made into the Belgian Bank at Brussels, designated by the name of "Société Générale pour favoriser l'Industrie Nationale," and the Chinese Railway Company will transfer (thereto) the sums paid into the Commercial Bank of China at Shanghai, organized by Imperial decree under date of the twelfth November one thousand eight hundred and ninety-six (eighth day, tenth month, twenty-second year of the present reign). The payments of interest and annuities will be made in pounds sterling into the above mentioned Commercial Bank.

ART. 5. It is understood that the guarantee of the railway line, referred to in article five of the contract, has absolutely priority of rank.

ART. 6. The present protocol shall be stamped with the seal of Their Excellencies the Viceroy of Pechili and of Hu-Kwang, and also with that of H. E. the Minister of Belgium at Peking.

The present protocol has been made out in four copies in the French and Chinese languages; both versions are equally authoritative.

Done at Shanghai, the twenty-first of July one thousand eight hundred and ninety-seven.

For the Chinese Railway Company,  
The Director General,

SHENG.

For the Belgian Company,  
The first class Engineer of Ponts et Chaussées, Director of the Intercommunal Waterworks Company,  
WALIN.

The Chief Engineer, Director of Ponts et Chaussées,

DUFOURNY.

### III

#### LOAN CONTRACT

Between the undersigned:

1. Their Excellencies the Viceroys of Chihli and of Hupeh, acting in virtue of full powers from the Imperial Chinese Government, duly authorized by decree of H. M. the Emperor of China, under date the 20 October, 1896, of which communication has been officially made to the Representatives of Belgium at Peking, by dispatch of the Tsung-li Yamen, under date of

2. The Imperial Government of China, represented by H. E. Sheng Hsuan-huai; Director General of the Chinese Railway Company;

3. The Chinese Railway Company, represented by H. E. Sheng Hsuan-huai, its Director General,

and the Société d'Etude de Chemins de Fer en Chine, represented by M. Eugene Hubert, engineer,

Has been agreed the following:

ARTICLE 1. The Imperial Chinese Government has, in compliance with a decree dated the 20 October, 1896, of which copy is annexed to the present contract, granted the concession of the line from Lu-kou-chiao (Peking) to Hankow (about 1,300 kilometers) to the Chinese Railway Company, which has assets amounting to thirteen million taels.

An edict of H. M. the Emperor of China has authorized Their Excellencies the Viceroys of Chihli and of Hupeh and H. E. Sheng Hsuan-huai, Director General of Chinese Railways, to contract, in the name and on account of the Imperial Chinese Government, a loan the product of which is destined exclusively to the building of the above mentioned line.

This edict, bearing date the 20 October, 1896, and of which a copy is annexed to the present contract, is worded as follows:

"Edict of His Majesty the Emperor of China:

"In response to a request of Their Excellencies the Viceroys of Chihli and of Hukwang, presented to His Majesty the Emperor of China, an Imperial edict, bearing date of this day, authorizes the organizing of a Railway Company and grants it the concession of the line from Lu-kou-chiao (Peking) to Hankow. His Majesty the Emperor authorises the Railway Company to contract abroad a loan the product of which shall be devoted in full to the building of said line."

"H. E. Sheng Hsuan-huai, under-secretary of State, is appointed Director General of this new Company."

"Peking, the 20th October, 1896."

In compliance with the terms of this edict, the Imperial Chinese Government, represented by Their Excellencies the Viceroys of Chihli and of Hupeh and the Director General of Chinese Railways, has decided to contract a State 5 p. c. foreign gold loan, of a nominal value of 112,500,000 francs (or 4,500,000 pounds sterling).

This loan shall be known as the Chinese 5 p. c. 1898 Loan.

ART. 2. This loan will be represented by 225,000 bonds of 500 francs gold. These bonds, the text of which is annexed to the present Contract shall be signed in the name of the Imperial Chinese Government by the Viceroys of Chihli and of Hupeh and by the Director-General of the Chinese Railway Company.

They shall be issued in blocks of 1 to 5 bonds, in the proportion to be indicated by the Société d'Etude de Chemins de fer en Chine and are to be manufactured at its expense.

They shall bear 5 p. c. interest annually on the par value payable in gold.

Interest shall accrue from the date of the payment and shall be payable the 1st September and the 1st March of each year.

The first coupon is payable in gold at ----- francs.

ART. 3. The loan shall be extinguished in twenty years, from the year 1909, by yearly drawings by lot (tirages au sort), which will take place in Brussels, in the offices of the Société Générale pour favoriser l'Industrie Nationale, in conformity with the table annexed to the present.

The drawings shall take place the second Tuesday of January each year; the first drawing shall take place on that date in 1909.

The numbers of the bonds drawn shall be published in four newspapers at the expense of the Société d'Etude des Chemins de fer en Chine.

ART. 4. The bonds drawn shall be refunded in gold at their par value on the date on which falls due the next coupons.

The bonds presented for reimbursement must have attached to them all the coupons remaining unpaid, and the amount of missing coupons will be deducted from the capital to be refunded.

Interest on bonds ceases to accrue from the date set for reimbursement.

ART. 5. The Imperial Chinese Government denies itself the right before the 1st September 1907 to increase the amortization, to pay off the whole loan or to make a conversion of it. After that date it shall be at liberty to pay off the loan at any time before the terms of payment, and once the refunding made, the contract shall be declared annulled.

ART. 6. The coupons and the bonds (titres) redeemed (amortis) shall be payable in francs, in Europe in the office or offices designated by the Société d'Etude and entrusted by it with the management of the loan.

ART. 7. Payment of interest and refunding of bonds of the present loan are guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of an authorization already granted by the Chinese Government and in agreement with it, the Chinese Railway Company declares that it specially assigns, preferentially for the payment of interest and capital of the present loan, and consequently cedes and delegates in favor of said bonds all the net revenues of the line from Lu-kou-chiao (Peking) to Hankow,—after the regular payment of all expenses of administration and operation, the whole, as is furthermore set forth in a treaty for operating (the line) concluded between the Chinese Railway Company and the Société d'Etude de Chemins de fer en Chine, treaty hereto annexed and forming an integral part of this contract.

This assignment (affectation) is made exclusively and irrevocably until complete refunding of the bonds of the present loan.

ART. 8. The Chinese Railway Company directs the Société d'Etude to deposit the funds from the net revenue of the traffic with the Société Générale pour favoriser l'Industrie Nationale, established at Brussels, or with the company designated by it.

This latter shall convert into gold, and to the best interest of the Imperial Chinese Government and the Chinese Railway Company, and up to the full amount of the sum necessary to insure the service of the loan at the following semi-annual payment, the deposits made with it by the Société d'Etude empowered by the Chinese Railway Company to make them.

These deposits by the Société d'Etude with the Société Générale Belge or the company designated by it shall continue to be made until the sum necessary for the full service of the loan at the date of the next semi-annual payment has been completed in gold, and in such manner that said service is insured three months at least before said semi-annual payment falls due. The depositories shall utilize these sums in the manner the most advantageous for the Chinese Company.

The account on which these sums are borne shall be charged twenty days before date of semi-annual payment with the sum necessary



for the service of the loan, interest, amortization, expenses and commissions.

ART. 9. The bank having received in deposit the funds shall have the right to take, without new authorization, from such funds on deposit, the amount of the coupons to be paid during the period of construction.

ART. 10. So as to insure the guarantee just mentioned for the bonds of the present contract, the Chinese Railway Company recognizes for these bonds a prior special lien on the railway from Lu-kou-chiao (Peking) to Hankow: line, stationary and rolling stock and receipts.

This special assignment is accepted in the name of the bondholders by the Société d'Etude. In case of non-execution of the obligations assumed by the Chinese Railway Company in the present contract, the Société d'Etude or the Belgian Company designated by it, shall have full power to enjoy as to said property all the rights and powers resulting from said special assignment.

ART. 11. The preceding provisions do not relieve the Imperial Chinese Government from personal responsibility relative to the present loan, as this responsibility is specified in Article 7.

Consequently, the Imperial Chinese Government agrees to make up the necessary amount for the service, in gold, of the loan, in case the sums accruing from the net proceeds of the line from Lu-kou-chiao (Peking) to Hankow, and paid by the Société d'Etude, entrusted with this service by the Chinese Railway Company, to the Société Générale Belge, or to the Company which it may designate, should not have reached, after their conversion in gold, and at least three months before the following semi-annual payment, the amount sufficient to cover said service.

In this case, and upon the request made it, the Imperial Chinese Government must hold at the disposal of the Société Générale Belge or of the Company designated by it 60 days before the next semi-annual payment, gold or securities deemed sufficient to realize the amount in gold, which the Company shall have notified the Government is necessary to complete the payment.

ART. 12. Out of the sums coming from the payments made by the Société d'Etude or the payments made by the Imperial Chinese Government, the Société Générale Belge, or the Company designated by it, shall in due time place at the disposal of the Firms entrusted with the service of the loan, the necessary amounts, according to the needs as ascertained during the preceding half-year.

ART. 13. The Imperial Chinese Government will pay to the Firms entrusted with the service of the loan, a commission of  $\frac{1}{4}$  per cent on the amount of paid coupons and a commission of  $\frac{1}{4}$  per cent on the amount of the bonds drawn or redeemed by anticipated reimbursement. The amount of this allowance shall be deducted every six months from the surplus of the available exploitation receipts, and, in case of insufficiency, it shall be immediately paid by the Imperial Chinese Government.

ART. 14. The Imperial Chinese Government binds itself by the present conventions to observe and cause to be observed the privilege stipulated in favor of the bonds in article 9, and to maintain, free and exempt from all tax whatsoever, the bonds and coupons, as well as all transactions of whatsoever nature connected with the service of the loan.

ART. 15. Coupons which shall not have been presented for cashing within five years following their falling due, shall revert to the Imperial Chinese Government: thirty years shall be the limit for redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to his heirs, according to the inheritance laws in force in the country of which the deceased bondholder was citizen.

Payments of coupons and the redemption of bonds shall be made in time of war, as in time of peace, to the bearers whether they be subjects of friendly or hostile States.

In case of loss, of theft or destruction of bonds of the present loan, the Chinese Government shall replace them, after having been furnished satisfactory proof of their loss or of

the destruction of the title deeds and of the rights of the claimants.

ART. 16. The Imperial Chinese Government through its representatives in Europe shall immediately take the necessary steps and furnish the necessary documents for the official listing of the present loan in the Bourses of Brussels and Paris.

ART. 17. Out of the total amount of the present loan, representing as nominal capital a sum of 112,500,000 francs, the Société d'Etude de Chemins de fer en Chine purchases outright (achète ferme) 39,000,000 francs of nominal capital, or 78,000 bonds of 500 francs, at 90%, for the total sum of 35 million 100,000 francs, delivery to date from the payment to the banks designated in the following article.

ART. 18. The Société d'Etude de Chemins de fer en Chine shall deposit the amount of this purchase, as follows: 8,600,000 francs in the Russo-Chinese Bank at Shanghai, and the remainder in a bank designated by common accord by the Director General of the Chinese Railway Company and the Société d'Etude and against receipt by the Russo-Chinese Bank in Paris of definite bonds for 78,000 bonds bought outright (achetés ferme) and deposit in the same bank of the definite bonds for 147,000 bonds forming the surplus of the loan.

The Russo-Chinese Bank and the Bank designated by common accord by the Chinese Railway Company with the sums deposited with them, it being understood that these depository establishments shall not be obliged to deliver these sums, except under the conditions and under the reservations indicated in under-mentioned Article 20.

ART. 19. The Chinese Railway Company declares that it has resources amounting to thirteen million taels.

The construction of the railroad from Lu-kou-chiao (Peking) to Hankow being limited provisionally to the section from Lu-kou-chiao (Peking) to Paoting (145 kilometers) and to the Hankow Sinyang section (247 kilometers) which must be constructed first; it is understood that the thirteen million taels above mentioned shall in the first place be applied to the construction and to putting in complete working order of the Lu-kou-chiao-Paoting section.

The construction of the entire line (not including the Peking-Paoting section) shall be done under the direction of the Société d'Etude de Chemins de fer en Chine or its representatives, but for the account of the Chinese Railway Company.

The Société d'Etude shall make the studies, plans, surveys, estimates for the whole line, direct the execution of all the work and order the materials, machinery and furniture necessary to insure the regular operation of the line. However, the Director General of the Chinese Railway Company reserves to himself the right to approve the building plans and contracts for supplies.

Except for supplies of materials and expenses of all kinds paid in Europe, the Chinese Railway Company must place at the disposal of the Société d'Etude the necessary sums for settling all payments without exception necessitated in the carrying out of the work, as well as the payment of the staff under the orders of the Société d'Etude and, in general, all expenses whatsoever.

Consequently the Société (d'Etude) shall not be obliged to pay any expenses from its own funds.

It shall endeavor to complete the construction of the line within three years.

ART. 20. On the Hankow-Sinyang section and eventually on the other sections between Paoting and Sinyang, the Russo-Chinese Bank in the first place and afterwards the bank designated by common accord by the Chinese Railway Company and the Société d'Etude, shall deposit each month with the Chinese Railway Company, out of the available funds in their hands, the amounts necessary to settle the payments for the ensuing month, according to the estimates prepared by the Société d'Etude or its delegates.

A first transfer equivalent to the estimated value of the work already executed on the Hankow-Sinyang section shall be made as a first credit.

The price paid for the above mentioned bonds being exclusively affected to the construction of the line from Hankow to Paoting, the Russo-Chinese Bank and the bank referred to in the first paragraph of the present article, would have the right not to pay the funds in case one of their payments were diverted from the purpose stipulated as well as in case the representatives of the Société d'Etude were no empowered by the Chinese Railway Company to continue the management of the construction works with which this company is exclusively entrusted.

The balance, if there be one, shall be held subject to the order of the Chinese Railway Company.

ART. 21. The Chinese Government cedes to the Société d'Etude an option till December 31, 1901, to purchase the surplus of the loan, to wit: 73,500,000 francs at 90% nominal, plus the accrued fraction due on the coupon.

This option can be availed of one or several times, without regard to the amortization made, but each notice must be for a sum not less than 25,000,000 francs net.

The delivery of the bonds taken on the options shall be to the Russo-Chinese Bank in Paris; the final bonds shall be delivered within a month dating from the telegraphic notifications to the management of the Chinese Railway Company.

The price of these bonds shall be deposited in the bank designated by common accord, by the Chinese Railway Company and the Société d'Etude, and it shall not surrender them except under the conditions stipulated in the above article 20.

ART. 22. If the Société d'Etude takes advantage of the right granted it to purchase all or part of the bonds on which it holds an option, it shall each time confer with the Chinese Railway Company to determine upon the sections (of line) to be built with its new funds.

ART. 23. The surveys of the line, dating from the signing of the present contract, are to be made at the expense of the Chinese Railway Company; the Hankow-Sinyang sections shall first be surveyed, and then successively each of the other sections, for building which an agreement may be had before the Société d'Etude avails itself of the right of option conceded it by Article 21.

It is henceforth understood that the section to be built with the funds derived from the first option shall be the one from Paoting towards the Yellow River, and the survey shall be begun during the first year.

ART. 24. La Société d'Etude reserves the right to make one or more issues, by public subscription or otherwise, of all or any part of the bonds whether bought outright (achetés ferme) or included in the option.

Should the issue be by public subscription, the Société d'Etude shall have the right to include in the total offered for subscription, exclusive of the 78,000 bonds taken outright (prises ferme) all or any part of the bonds covered by the option, without on that account being committed to take outright (prendre ferme) any part whatever of the bonds covered by the options.

It shall be allowed fifteen days, counting from the closing of the public subscription, to inform by registered telegram addressed to His Excellency Sheng, Director General of the Chinese Railway Company at Shanghai, the number of bonds it has taken, and that, at the price and under the conditions above specified.

The payment and the delivery of the bonds taken by the Société d'Etude following the public subscription shall take place under the conditions specified in the above mentioned articles.

ART. 25. The present contract shall only be binding on the Société d'Etude inasmuch as it shall have the promise that, with the exception of what can be supplied by the Hankow works, all the materials and supplies necessary for the construction and working of the railroad from Lu-kou-chiao (Peking) to Hankow will be ordered from the Société d'Etude which will fill the orders under the best possible terms.



Exception is made for the material necessary for the equipment (armement) of the line from Lu-kou-chiao to Paoting, as this material is almost entirely ready.

Compliance with the provisions of this clause by the Chinese Railway Company shall result from the ordering of material for each of the sections undertaken.

Material ordered from the Société d'Etude shall be exempt from all customs and likin duties on entering or crossing Chinese territory.

If this franchise is not made good before the expiration of the month following the date on which the Belgian Government shall have notified the Société Belge of the receipt of the notifications stipulated in article 29, it (the Société d'Etude) reserves the right not to hold itself bound.

It reserves the same right and within the same time if extraordinary events should arise, as for instance war, or if the French Debt (rente française) should fall below par.

If, on its side, the Société Belge should not keep the terms of the present contract, it shall be annulled; the Chinese Railway Company shall be free to enter into contract with whomsoever it may see fit, and to dispense with the services of the Engineer-in-Chief.

ART. 26.—In case of controversies or differences between the Société d'Etude or its representatives and the Imperial Chinese Government or the Chinese Railway Company, these controversies or differences shall be submitted to the judgment of a member of the Tsung-li-Yamen and the Belgian Minister in China.

In case of disagreement between these latter, the Tsung-li-Yamen and the Belgian Minister shall designate an arbitrator who shall decide finally.

ART. 27. As guarantee for the financial execution of the present contract, the Société d'Etude has already deposited in the Russo-Chinese Bank 20,000 pounds sterling as security.

It shall take full possession of this sum as soon as it shall have fulfilled the provisions stipulated in the first two paragraphs of article 18 here above.

It is understood that the payment of 8,600,000 francs to the Russo-Chinese Bank at Shanghai must be made within the month following the date of the signing of the present contract.

ART. 28. The Tsung-li-Yamen shall be bound in case the Belgian Minister at Peking request it to give cognizance of the title to the Minister of the foreign country, indicated by him, as subscriber to the issue of stock.

ART. 29. The present contract is made in triplicate, one copy for the Chinese Government, one for the Chinese Railway Company and the third for the Société d'Etude de Chemins de fer en Chine.

In case of doubt or disagreement, the French text alone shall be used to interpret the contract.

The present contract must be submitted through the proper channel for Imperial Sanction, and when said Sanction has been obtained, the Tsung-li-Yamen must advise the Belgian Representative at Peking by official dispatch and eventually the Representative in Peking of the foreign country to whom it may give cognizance of the title (le Représentant à Peking du pays étranger le titre sera notifié). These formalities shall be complied with within the month following the signing of the contract. The provisions of the contract signed at Wuchang the 25th May, 1897, and of the protocol signed the 21st July, 1897, which do not conflict with the present contract, especially those of Article 14 of the Wuchang contract and Article 2 of the Shanghai protocol, are and remain in force. The Société Générale of Brussels and the Russo-Chinese Bank are parties to the present contract, and they, after having examined the preceding contract, declare that they, as far as necessary, accept the duties imposed. According to Article 14 of the above mentioned Wuchang contract, the Chinese Railway Company will only recognize the Société Belge as contracting party.

Done at Shanghai, the twenty-sixth day of the month of June, one thousand eight hundred ninety-eight.

The Engineer representing the Société d'Etude de Chemins de fer en Chine.

The Director General of the Chinese Railway Company.

The Representatives of the Imperial Chinese Government:

The Viceroy of Hupeh,  
The Viceroy of Chihli.

#### OPERATING CONTRACT

Between the undersigned:

1. The Imperial Chinese Government, represented by Their Excellencies, the Viceroys of Chihli and of Hupeh;

2. The Chinese Railway Company, represented by His Excellency Sheng Hsuan-huai, its Director General of the Company at Shanghai. And the Société d'Etude de Chemins de fer en Chine, whose office is at Brussels, Has been agreed as follows:

ARTICLE 1. The Chinese Railway Company, in accord with the Imperial Chinese Government, entrusts the Société d'Etude de Chemins de fer en Chine, which shall appoint representatives for that purpose, with the direction, administration, and operating of the line from Hankow to Lu-kou-chiao (Peking), for which it holds a concession, under the terms of an edict of His Majesty the Emperor of China dated October 20, 1896, and of which a copy is annexed to the present contract.

ART. 2. The Société d'Etude shall take over the working of the line as soon as each section is completed, following final acceptance by the Imperial Administration of Chinese Railways. Each section must be completely and previously equipped and provided with all the material necessary for its working, as well as with the supplies of tools, furniture and a fund for running expenses. The Société d'Etude or the representatives it shall appoint under the provisions of Article 1, shall organize the various services, shall have the right to hire the personnel, which it shall have absolute right to dismiss, or disband, and to fix its salaries according to a fixed schedule previously communicated to the Director General of the Chinese Railway Company. It shall make all purchases necessary for operating, maintaining or repairing the road; it shall fix the schedule of rates in the terms of concession contracts, collect revenues of all kinds and pay the operating and management expenses of the Company. The foregoing measures, taken for the purpose of operating the line, shall be submitted, for consultative purposes, to the Director General of Chinese Railways.

The Chinese Railway Company, which will appoint delegates for that purpose, shall have absolute right of control over the receipts and expenses.

The purchase of all new material or works for the improvement or extension of the regular road, or of stations, which may be found necessary after the opening of each section of the line to traffic shall be at the sole expense of the Chinese Railway Company. As far as possible the supplies necessary for the maintenance and repairing of the road shall be ordered from the works and mines under the control of the Director General of the Chinese Railway Company.

ART. 3. In case of war or revolution in China, the transportation of troops, munitions and of the supplies of the Chinese army shall have right of way over all commercial transportation. The rate for such transportation shall be 50 per cent of the tariff, and it shall be carried according to the instructions of the Director General of the Chinese Railway Company. The transportation of anything of nature to injure the Imperial Chinese Government shall moreover be forbidden.

ART. 4. Out of the receipts from operation available, after payment of all expenses, the Société d'Etude shall retain the necessary sum to insure the payment, every six months, and at least three months before its date of payment, of the service of the loan of 112,500,000 francs contracted by the Imperial Chinese Government.

This reserve shall be made as long as said loan is not entirely paid off.

The amount of this reserve shall be deposited monthly with the Société Générale Belge pour favoriser l'Industrie Nationale, or with the Company designated by it. The latter shall convert into gold on the best terms procurable the sums paid to it for the service of the loan.

When, by means of the sums thus paid in, the service in gold of the loan shall have been insured, the Société d'Etude shall deduct 10% of the surplus, which shall be applied to the creation of a reserve fund for rebuilding or making extraordinary repairs necessary to insure the working of the lines.

It shall then pay the balance remaining available out of the operating revenues to the Chinese Railway Company.

ART. 5. The duration of the present operating contract is fixed at thirty years dating from the signing of the contract.

However, this period would be fully entitled to extension in case the loan of 112,500,000 francs should not at that time be wholly paid off; this extension would continue as long as the complete amortization had not been made. But if the refunding of the loan should be made before the dates on which they fall due, the present working contract will be annulled from the date of the total refunding of the loan.

ART. 6. During the entire period of the working of the line by the Société Belge, the Chinese Railway Company grants it 20% of the net profits of the railroad from Peking to Hankow, as agreed upon by mutual consent, after the closing of each fiscal term (exercice), taking into account, naturally, the sums necessary for the service of the interest and the amortization of the loans.

ART. 7. In case of contentions or disagreement between the Société d'Etude and the Management of the Chinese Railway or the Imperial Chinese Government, said contentions and disagreements shall be settled as specified in Article 26 of the loan contract.

ART. 8. If the revenues from operating the lines are not sufficient to cover the expenses, the Chinese Railway Company must supply the Société d'Etude with the necessary means to insure the operating of the lines under normal conditions.

ART. 9. All materials and supplies needed by the Société d'Etude for the working of the line, as well as for the maintenance and repair of the line, shall, when imported from abroad, be exempt from all customs or likin dues.

ART. 10. The present contract is made in triplicate; one copy for the Imperial Chinese Government, one for the Chinese Railway Company, and the third for the Société d'Etude de Chemins de fer en Chine.

In case of doubt or disagreement the French text shall alone be accepted for the interpretation of the contract.

The present contract must be submitted through the proper channel for Imperial sanction, and when said sanction shall have been obtained, the Tsung-li Yamen must advise, by official dispatch, the Belgian Representative at Peking and eventually the representative at Peking of the foreign Government to which the title may be officially notified (auquel le titre sera notifié).

Done in Shanghai, the twenty-sixth of the month of June eighteen hundred ninety-eight.

The Engineer representing the Société d'Etude de Chemins de fer en Chine.

(Sgd.) HUBERT.

The Director-General of the Chinese Railway Company,

(Sgd.) SHENG-HSUAN-HUAI

Seen for authentication:

(Sgd.) FRERE,  
Belgian Consul.

Witnesses:

(Sgd.) HU.  
Ko.

(Official seal of the Chinese Railway Administration.)

The Representatives of the Imperial Chinese Government:

The Viceroy of Hupeh,  
The Viceroy of Chihli.



**CONTRACT FOR BUILDING A RAILWAY FROM KAI-FENG FU TO HO-NAN FU. (SIGNED AT SHANGHAI, 1904.)**

between the undersigned:

1. The Imperial Chinese Railway Company, represented by H. E. Sheng Kung Pao, Director-General, duly authorized by the Chinese Government.

2. La Compagnie Générale de Chemins de Fer et de Tramways en Chine, represented by Monsieur Armand Rouffart, its delegated Administrator, provided with full powers.

It has been agreed as follows:

Article 1.—The Director-General of the Imperial Chinese Railway Company, H. E. Sheng Kung Pao, has in a report asked the Chinese Government that a line of railway should be built starting from a point called Yung Tse on the railway line of the Luhan where the latter crosses the river. From that point eastward to Kai-feng the line will be 170 li long, and westward to Ho-nan Fu it will cover 250 li. These two branches of the Luhan to be built by a Belgian party (groupe), which will make a loan to build them.

This proposal was accepted by a decree dated the 30th day of the 10th moon of 25th year of the present reign.

Monsieur Rouffart, the representative of La Compagnie Générale de Chemins de Fer et de Tramways en Chine, has asked us by letter to undertake this building, and we sent a Chinese official to accompany him in his preliminary study on the ground. After said study, Monsieur Rouffart estimated the probable cost of these two branches at one million pounds sterling, or 25,000,000 francs; and for all other terms the contract from Peking to Hankow are to be followed.

Under date of the 29th day of the 12th moon of the 28th year of the present reign the Wai-Wu-Pu wrote to me that I was to discuss the terms of the contract with Monsieur Rouffart, and it asked me to settle the matter as promptly as possible.

Considering that Monsieur Rouffart has full powers from the Compagnie Générale de Chemins de Fer et de Tramways en Chine to negotiate this business for it, we, Director-General of the Imperial Chinese Railway Company, and Monsieur Armand Rouffart, representing the Compagnie Générale de Chemins de Fer et de Tramways en Chine, hereby enter into a contract for a loan, the product of which shall be applied to the building of the Railway from Ho-nan Fu to Kai-feng Fu.

Before signing the contract the Director-General of the Imperial Chinese Railway Company has submitted said contract for Imperial sanction, and it has been approved under date of ———.

This decree shall form Annex 1 of the present contract. In virtue of the above the Director-General, on account of the Chinese Government, makes a gold 5 per cent. loan for the sum of 25,000,000 francs, or 1,000,000 pounds sterling. This loan shall be known as the Chinese Government 5 per cent. Gold Foreign 1903 Loan (*Emprunt du Gouvernement Chinois 5 pour cent ou Extérieur 1903*).

Article 2.—This loan shall be represented by 50,000 bonds of 500 francs gold each.

These bonds, the text of which is annexed to the present contract (Annex 2), shall be signed in the name of the Chinese Government by the Minister Plenipotentiary of China at Brussels.

They shall be delivered in fractional bonds (coupons) of 1 to 2 bonds, in such proportion as the Compagnie Générale de Chemins de Fer et de Tramways en Chine may request, the total number not to exceed 50,000; the expense of making these bonds shall be charged to the Compagnie Générale de Chemins de Fer et de Tramways en Chine. They shall bear 5 per cent. interest a year on the nominal capital payable in gold.

Interest shall run from the date of payment of the product (of the sale) of the bonds, and shall be payable the 1st January and 1st July of each year.

Coupons which have become due and have been paid shall be classed in numeric order by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and at its expense, and it shall then send them to the Imperial Chinese Railway Company at Shanghai

to be cancelled. If the returned coupons are lost in transmission the Compagnie Générale de Chemins de Fer et de Tramways en Chine must publish the numbers of the paid and lost coupons in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 3.—The loan shall be redeemed in twenty years counted from the tenth year of issue, by the method of drawing by lots in the offices of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, in accordance with the table annexed to the present contract (Annex 3). The drawings by lots shall take place on the third Wednesday of April in each year. The first drawing shall take place on that date beginning with the tenth year from the date of issue of the loan.

The numbers of the drawn bonds shall be published in four newspapers at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 4.—The bonds drawn by lots shall be paid in gold at their par value on the date on which fall due the coupons following the date of the drawing. Bonds presented for refunding must have attached all coupons still unpaid, and the amount of missing coupons will be deducted from the capital to be reimbursed. Interest on bonds will cease to accrue from the day set for reimbursement. Paid off bonds shall be classified and sent back by and at the expense of the Compagnie Générale de Chemins de Fer et de Tramways en Chine to the Imperial Chinese Railway Company at Shanghai to be cancelled. If these bonds should be lost on the way, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall publish the numbers of the paid and lost bonds in four different newspapers, and transmit to the Imperial Chinese Railway Company a declaration stating the loss.

Article 5.—The Chinese Government denies itself the right, before the date fixed for the first amortization, to fix a larger amortization, or to refund the whole loan or to convert it. After that date it shall be free to refund the loan at whatsoever time it chooses before the dates of payment, and, the refunding made, all contracts shall be declared annulled.

Article 6.—Coupons and bonds shall be paid off in francs in the office or offices entrusted with the management of the loan.

Article 7.—Interest payment and the reimbursement of the bonds provided for in the present loan shall be guaranteed by the gross revenues of the Imperial Chinese Government.

Furthermore, in virtue of the authorization, already granted by the Chinese Government, and in accord with it, the Imperial Chinese Railway Company declares that it makes a preferential assignment in favor of the payment of interest and of the capital of the present loan, and that it cedes and assigns in favor of said obligations all the net receipts of the line from Kai-feng Fu to Ho-nan Fu, after the regular payment of all expenses of management and operating, the whole as elsewhere indicated in an operating treaty concluded between the Imperial Chinese Railway Company and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, said treaty being annexed to and forming an integral part of the present contract. This assignment is made exclusively and irrevocably until complete redemption of the bonds of the present contract.

Article 8.—After auditing and noting the net receipts the Imperial Chinese Railway Company shall direct the Compagnie Générale de Chemins de Fer et de Tramways en Chine to deposit these funds in a bank to be chosen by common consent. This bank shall convert into gold, in accordance with the provisions stipulated in the contract made between the Bank, the Imperial Chinese Railway Company, and the Compagnie Générale de Chemins de Fer et de Tramways en Chine, and to the best advantage of the Imperial Chinese Railway Company, the sums paid it, and up to the full amount needed to ensure the service of the loan at the next semi-annual payment.

These deposits shall continue to be made until the sum needed for the integral service

of the loan on the following date of payment has been realized in gold, and in such manner that said service is ensured at least three months before the date of the semi-annual payment.

The bank designated for the receipt of these sums shall use them to the best advantage of the Imperial Chinese Railway Company. The account in which these sums shall be carried shall be charged twenty days before the date of payment with the sums needed or the service of the loan, interest, amortization, money expenses, difference of exchange, and the commissions provided for by the present contract.

Article 9.—The bank in which shall be deposited the loan funds shall have the right without further authorization to levy on said funds on deposit the amount of the coupons to be paid during the construction period; but it shall advise the Director-General as these payments are made.

Article 10.—To ensure the guarantee just given to the bonds of the present contract, the Imperial Chinese Railway Company grants these bonds a special first-class guarantee on the railway from Kai-feng Fu to Ho-nan Fu, on its fixed and rolling stock and its receipts.

The special assignment is accepted in the name of the bondholders by the Compagnie Générale de Chemins de Fer et de Tramways en Chine. In case of non-fulfilment of the obligations assumed by the Imperial Chinese Railway Company in the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall have full power to take such action against said property as may result from this special assignment, and in that case the provisions of the operating treaty hereto annexed must always be strictly observed.

Article 11.—The preceding provisions do not conflict with the personal responsibility of the Chinese Government concerning the present loan, as said responsibility is specified in Article 7.

Consequently the Imperial Chinese Government pledges itself to make up the sum necessary for the service of the loan in gold, in case the sums derived from the net revenues of the line from Kai-feng Fu to Ho-nan Fu, and paid in by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this management by the Imperial Chinese Railway Company, to the bank chosen, should not produce after conversion into gold, and three months before the date of the following semi-annual payment, an amount sufficient to ensure said service.

In the case, and on demand made it, the Imperial Chinese Government shall be bound to put at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine sixty days before the following semi-annual payment falls due, in gold or in securities of sufficient amount to produce it in gold, the sum stated to it as being needed to make up said service.

Article 12.—From the sums derived from the deposits by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with that duty by the Imperial Chinese Railway Company, or from the supplementary sums paid by the Chinese Government, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall, in proper season, place at the disposal of the firms entrusted with the management of the loan the amounts necessary therefor according to the needs as determined during the preceding half-year.

Article 13.—The Imperial Chinese Government will pay to the firm entrusted with the management of the loan a commission of  $\frac{1}{4}$  per cent., that is to say 25 francs for 10,000 francs on the amount of the coupons paid, and a commission of  $\frac{1}{4}$  per cent. on the amount of bonds drawn by lots or redeemed under anticipated refundings. The amount of this allowance shall be settled every six months; and, in case of insufficiency, it will be paid at once by the Imperial Chinese Government.

Article 14.—The Imperial Chinese Government binds itself to respect and cause to be respected the privilege provided for in favor of the bonds under Article 9 of the present conventions, and to hold free of all Chinese taxa-



tions whatsoever the bonds and coupons as well as all operations whatsoever connected with the management (service) of the loan. The preceding (provision) concerns the bonds and coupons of the loan and the operations relating to the management of the loan, and which shall be exempt from all taxation. But the taxes now in force in China, such as land rent and the taxes which the Chinese Government may impose hereafter, such as a stamp tax levied on the general commerce of China, the railway provided for in the present contract, and its traffic shall bear them. It being understood that no exceptional law shall be passed for the railway in question, and that the rule which shall be applied to it shall be that of all Chinese railways.

Article 15.—Coupons which have not been presented for cashing within five years after the date on which they fall due shall be lost by limitation (*prescripts*) in favor of the Imperial Chinese Government. The limit of time shall be of thirty years in case of redeemed bonds.

On the death of any bondholder of the present loan, the bonds shall be transferred and shall belong to the heirs, in conformity with the inheritance laws in force in the country of the bondholder.

Payment of coupons and refunding of bonds shall take place in time of peace and in time of war to the holders, whether they be subjects of friendly states or of hostile ones. In case of loss, theft, or destruction of bonds of the present loan, the Imperial Chinese Government will authorize the Compagnie Générale de Chemins de Fer et de Tramways en Chine to replace the bonds by new ones at its own expense, whenever it shall have satisfactory evidence of the loss or destruction of the bonds and title deeds (*des titres et des droits*) of the claimants.

Article 16.—The Imperial Chinese Government, through its representatives, shall at once take steps and shall furnish the necessary documents to secure the official listing (of the bonds) in the Bourses of the capitals of Europe.

Article 17.—The whole amount of the present loan, amounting to twenty-five millions of francs, represented by 500,000 bonds of 500 francs each, possession to be had from the date of payment, is bought outright (*pris ferme*) by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, at the price of 90 per cent., that is for the sum of twenty-two millions five hundred thousand francs.

If on the date of issue the bonds for the loan for the Hankow-Peking Railway should be quoted below 482.50 francs inclusive of the interest payable (*en tenant compte de la jouissance*) the two contracting parties would have the right to cancel the present contract.

Article 18.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine will deposit the full amount of the proceeds of this purchase in the banks designated by it after agreement with the Director-General of the Imperial Chinese Railway Company, on delivery of the 50,000 bonds bought outright (*achetées fermes*.)

The sum needed for the building of a fixed length of line shall be transferred to Shanghai, and deposited in such bank as is mutually agreed upon.

This bank shall convert into taels the sum in accordance with the instructions of the Director-General of the Imperial Chinese Railway Company. A sum on the available proceeds of the loan, at least one-tenth of the proceeds of the conversion into taels, shall be deposited in a bank in China, to be chosen by the Director-General of the Imperial Chinese Railway Company, and under his sole responsibility, and this deposit shall be applied to expenses at such times as the rates for the conversion of European values into taels may be unfavorable. It being well understood that the depository establishments shall only be required to deliver these sums under the conditions and limitations mentioned in Article 20 here below.

Article 19.—The construction work for the whole of the line shall be under the direction of the Chief Engineer chosen by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, entrusted with this work by the Imperial Chinese Railway Company and for its account.

The Chief Engineer shall prepare all studies, plans, tracings, estimates for the whole of the line; he shall direct the carrying out of all works and shall order the materials, tools, and supplies necessary to ensure the regular working of the line. Nevertheless all these operations must be submitted for the approval of the Director-General of the Imperial Chinese Railway Company.

As the line from Kai-feng Fu to Ho-nan Fu is a feeder (*confluent*) of the Luhan, the width of the rails and the general methods of operating must be the same as on the Luhan.

With the exception of the supplies of material and the expenses of all kinds duly authorized by an act signed by the Director-General of the Imperial Chinese Railway Company, and paid at Brussels, the Imperial Chinese Railway Company shall place at the disposal of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, from the proceeds of the loan, the sums necessary to make, without any exceptions, all necessary payments for the carrying out of the works, the salaries of the staff under its orders, and in general for all expenses of whatsoever kind. But these payments must always be previously approved by the representatives of the Director-General.

After the signing of the present contract the Imperial Chinese Railway Company directs the Compagnie Générale de Chemins de Fer et de Tramways en Chine to choose an Engineer with experience in construction work, who shall direct the construction of the line and prepare studies, plans, tracings, and specifications for the whole line, and the whole shall be submitted for the approval of the Director-General of the Imperial Chinese Railway Company. Said Chief Engineer shall be appointed, on recommendation of the Compagnie Générale de Chemins de Fer et de Tramways en Chine, by the Director-General of the Imperial Chinese Railway Company, to whom he is directly responsible.

The Director-General of Chinese Railways shall fix the amount of his salary, after agreement with the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

The Chief Engineer shall prepare a tabulated plan of the European staff necessary for the building, and shall submit it for the approval of the Director-General of the Imperial Chinese Railway Company. This staff shall be engaged by the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which shall put it under the order of the Chief Engineer.

As regards the Chinese staff, whether technical or other, the Director-General of the Imperial Chinese Railway Company reserves to himself the right to choose it, and to put it under the orders of the Chief Engineer. No Chinese or European employee shall be engaged without the assent of the Director-General of the Imperial Chinese Railway Company. It is understood that Chinese subjects who have made special studies, or who have acquired sufficient practical knowledge, may be presented by the Director-General of the Imperial Chinese Railway Company to the Chief Engineer, who shall employ them on the works under the same conditions as European employees. As to the technical service, the Chinese staff as well as the European staff shall be under the direct orders of the Chief Engineer. But the Director-General reserves the right to demand the instant dismissal of any agent of whatever nationality on condition that the demand for dismissal is based on serious reasons.

The Director-General likewise reserves the right to depute on the works a special representative with full powers. The salary of said representative, as also the running expenses of the head office at Shanghai, shall devolve on the Kai-feng Fu to Ho-nan Fu railway concern.

Orders for materials, tools, and furniture for the construction of the line, and for its orderly working, shall be submitted through the Chief Engineer to the Director-General for approval.

Orders as well as contracts for work shall be drawn up, after mutual agreement, by the Chief Engineer and the representative of the Director-General.

Statements of the sums paid for supplies of materials and expenditures of every description settled in Europe shall be sent with all vouchers and explanatory documents to the Imperial Chinese Railway Company every three months.

Every month the Chief Engineer, in agreement with the Imperial Chinese Railway Company, shall request the bank in which are deposited the loan funds, to pay the amount necessary for the general expenses of the undertaking during the month following, to an agent chosen by the Director-General of the Imperial Chinese Railway, and against receipt duly signed by the latter and under the responsibility of the Director-General of the Imperial Chinese Railway Company. This agent shall not surrender any of the funds except under the signature of both the Chief Engineer and the representative of the Director-General.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall not therefore be obliged to meet any expense for the building out of its own money.

Said Company shall endeavour to finish the work on the line within two years from the date on which the railway from Hankow to Peking shall be opened to traffic as far as the Yellow River, because materials will then be easily transported.

It is well understood that the Imperial Chinese Railway Company will not pay the expenses of the office in Brussels, except the necessary expenses for the studies, orders, receipt of materials, living of staff; consequently the personal expenses of the directors, allowances (indemnities), etc. will continue to be chargeable to the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

Article 20.—The price paid for the above mentioned bonds being exclusively assigned to the building of the railway from Kai-feng Fu to Ho-nan Fu, the Compagnie Générale de Chemins de Fer et de Tramways en Chine, or the bank having received the deposits, would have the right not to give up these funds in case one of the deposits should not have been applied as provided for, and also in case the delegates of the Compagnie Générale de Chemins de Fer et de Tramways en Chine were not enabled by the Imperial Chinese Railway Company to continue the direction of the construction works.

The balance on hand, if any should exist after the completion of the works, shall be held subject to the order of the Imperial Chinese Railway Company. After the completion of the works and the organization of traffic, if the funds of the issue should still show a (credit) balance, said balance shall be paid in full to the Imperial Chinese Railway Company, who shall remit it to the Chinese Government.

If the loan provided for in the present contract should not be enough to finish the line or to organize traffic, the Compagnie Générale de Chemins de Fer et de Tramways en Chine is authorized by the present (contract) to make a further loan on the same terms as in the present contract without being obliged to make a new contract.

Article 21.—Within nine months following the date of the signing of the present contract, the Compagnie Générale de Chemins de Fer et de Tramways en Chine shall buy outright from the 50,000 bonds a first lot for 12,500,000 francs at the price of 90 per cent. for the purpose of building the first portion of the line. The balance of the issue, or 12,500,000 francs, for the building of the second section of the line, shall be taken at the same price and in one or two instalments by (public) subscription or otherwise. But it remains well understood that the expense of issuing the loan falls on the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

If the Compagnie Générale de Chemins de Fer et de Tramways en Chine should begin simultaneously the building of both sections of the road on either side of the Luhan line, it shall have the right to make but one issue for the whole loan.

Article 22.—Preliminary studies of the line after the signing of the present contract are at the expense of the Imperial Chinese Railway Company, and are to be provided for out of



the loan funds. Said studies of the line shall be provided for from the revenues derived from the loan, and they shall begin on the section running from Kai-feng Fu to the junction with the Hankow-Peking line. They shall afterwards be made over the other sections. From the Luhan junction to Ho-nan Fu will constitute the second section.

The proceeds from the first purchase of bonds shall be applied to the building of the portion of line from Kai-feng Fu to the Luhan junction.

The preliminary studies shall begin within nine months from the date of signing the present contract.

The Compagnie Générale de Chemins de Fer et de Tramways en Chine shall deposit one million francs to the order of the Imperial Chinese Railway Company. This sum is considered as an advance on the loan for the railway from Kai-feng Fu to Ho-nan Fu and is to be specially devoted to expenses for study of the line.

The depository bank shall not surrender this sum except in accordance with the provisions of Article 20 of the present contract.

This advance shall produce an annual 6 per cent. interest without rate of issue, but it shall be refunded with the proceeds of the first sale of 12,500,000 francs, which must be issued within nine months from the signing of the present contract; a portion of the proceeds of this sale will be issued to refund the advance first made.

Article 23.—Should the Compagnie Générale de Chemins de Fer et de Tramways en Chine finish satisfactorily the work for the railway from Kai-feng Fu to Ho-nan Fu, complying strictly with all the provisions of the present contract, and should the Chinese Government decide to extend the railway from Ho-nan Fu to Si-ngan Fu, the Director-General of the Imperial Chinese Railway Company agrees to come to an understanding preferably with, and to grant an option for the loan necessary for said undertaking to, the Compagnie Générale de Chemins de Fer et de Tramways en Chine in conformity with the provisions and conditions of the present contract.

Article 24.—The present contract shall only be binding on the Compagnie Générale de Chemins de Fer et de Tramways en Chine if it is assumed that, exclusive of what may be

furnished and produced in China, and bought at the same prices as the European product delivered in China, the total amount of materials and supplies necessary for the building and operating of the railway from Kai-feng Fu to Ho-nan Fu will be asked of and ordered from the Compagnie Générale de Chemins de Fer et de Tramways en Chine, which will fill these orders under the best possible terms.

The carrying out of this provision of this contract by the Imperial Chinese Railway Company will be proven by the orders for materials for each of the sections of line undertaken.

Orders from the Compagnie Générale de Chemins de Fer et de Tramways en Chine will be free from all duties or from likin on importation or in transit across Chinese territory.

If proof of the granting of this franchise is not forthcoming before the end of the month following the date on which the Belgian Government should inform the Compagnie Générale de Chemins de Fer et de Tramways en Chine that it has received notification concerning Article 28, said Company reserves the right not to consider itself bound.

It reserves the same right if extraordinary events should take place, such as a war, or if there were absolute impossibility to secure subscribers for the bonds.

Should on its side the Compagnie Générale de Chemins de Fer et de Tramways en Chine not fulfil within the given delays the obligations it has assumed by the present contract, it shall become annulled. The Imperial Chinese Railway Company would be at liberty to enter into contract with whosoever it chose, and to give up the service of the Chief Engineer.

It is expressly agreed that the works and mines under the control of H. E. Sheng Kung Pao shall have a preferential right for all orders necessary for the building and operating of the railway which is the object of the present contract. The word preference applies to equality of specifications and prices, including transportation, as if the orders had to be filled abroad and delivered in China.

All orders made in China shall be free of duties and of likin on Chinese territory.

Article 25.—In case of disagreement between the Compagnie Générale de Chemins de Fer

et de Tramways en Chine or its delegates and the Imperial Chinese Government or the Imperial Chinese Railway Company, such conflicts or disagreements shall be settled by the decision of a member of the Ministry of Foreign Affairs and the Minister of Belgium in China. In case of non-agreement the third arbitrator shall be the Dean of the Diplomatic Body at Peking.

Article 26.—Should the Minister of Belgium request the Chinese Minister of Foreign Affairs, the latter shall be bound to give cognizance of the title (*notifier le titre*) to the Minister of the foreign country mentioned to him as subscribing to the issue of bonds. The present contract is drawn up in triplicate, one copy for the Chinese Government, one for the Imperial Chinese Railway Company, and the third for the Compagnie Générale de Chemins de Fer et de Tramways en Chine.

In case of doubt or disagreement, the French text alone shall be authoritative in interpreting the present contract.

The present contract shall be submitted through the proper channel for the Imperial Sanction, and when that shall have been obtained, the Minister of Foreign Affairs shall notify, by official despatch, the Representative of Belgium at Peking, and in case of necessity, the Representative at Peking of the foreign country to whom the title shall be notified.

Article 28.—The Compagnie Générale de Chemins de Fer et de Tramways en Chine has been organized at Brussels the 26th March, 1900, under Belgian law (*régime belge*) and with Belgian capital.

The Imperial Chinese Railway Company only recognizes for the purposes of the present contract the above-mentioned contracting Belgian Company, which shall never have the right to transfer the present contract to other nations nor to persons of another nationality than Belgian.

Article 29.—The present contract includes the right to build little branch lines from the line from Kai-feng Fu to Ho-nan Fu for the purpose of securing traffic and establishing useful relations. These branch lines shall only be built after agreement with the Director-General and the Governor of Ho-nan and in accordance with plans approved by them.

## RUSSIA

### AGREEMENT BETWEEN THE CHINESE GOVERNMENT AND THE RUSSO-CHINESE BANK FOR THE CONSTRUCTION AND MANAGEMENT OF THE CHINESE EASTERN RAILWAY.

*Imperial sanction received by the Chinese Envoy to Russia, Hsu, dated 29th August, 1896. Agreement signed 8th September, 1896.*

1.—China and Russia establish a Company, to be called the Chinese Eastern Railway Co., to construct and manage this railway. The seal to be used by the Company will be issued by the Chinese Government. The regulations of the Company will be in conformity with those of Russian Railway Companies. Shares may only be bought by Chinese and Russians. The Director of the Company will be appointed by China. His remuneration will be provided for by the Company. He may live in Peking. His duty will be to supervise the task delegated to the Company by China, and to ascertain whether its obligations are faithfully performed. All business between the Company and the Chinese Government or any Chinese officials, either in Peking or the provinces, will also be managed by the Director. The Director will also investigate from time to time the accounts of the Company with the Chinese Government. An agent must be stationed in Peking for convenience of consultation.

2.—For the purpose of surveying the course of the railway, the Chinese Director will depute an officer to act in conjunction with the Company's Engineer and the local officials along the line of route, who will arrange matters satisfactorily. Measures must be taken to pass round all houses, graves, villages, and towns in the course of the railway.

3.—Within twelve months of the issue of an Imperial Edict sanctioning this Agreement

the Company must have commenced work on the railway; and within six years from the date of the completion of the survey for the line and the handing over to the Company of the necessary land the whole line must be completed. The gauge of the line must be that of the Russian Railway, i. e., 5 Russian feet, equivalent to 42½ Chinese inches.

4.—The Chinese Government will order all local officials concerned to do their utmost to assist the Company in regard to all material required for the construction of the railway, in engaging laborers and boats, carts, men, and horses for transport purposes, and in the purchase of grain and fodder. All these must be paid for by the Company at market rates. The Chinese Government will also afford facilities for transport.

5.—The Chinese Government will take measures for the protection of the line and of the men employed thereon. The staff, Chinese and foreign, necessary for the line will be engaged as required by the Company. All crimes and lawsuits arising on the land of the Company will be dealt with by the local officials in accordance with Treaty.

6.—As regards the land required by the Company for constructing, managing, and protecting the line and adjacent land, for procuring sand, earth, stones, and lime, if the land be Government land it will be given the Company without payment. If privately owned, the Company will provide funds for payment to the proprietors at market rates, either in one payment or

as yearly rent. All the Company's land will be exempted from land tax. As soon as the land comes under the management of the Company, they may erect thereon any buildings and carry on all kinds of work, and they may establish a telegraph line thereon worked by the Company for the Company's use. With the exception of mines, for which special arrangements must be made, all receipts of the Company for transport of passengers and freight telegrams, etc., will be exempt from all taxation.

7.—All materials required by the Company for the construction and repair of the line will be exempt from taxation.

8.—All Russian troops, naval or military, and munitions of war, moved by the Russian Government by this railway, must be conveyed by the Company directly across the border. Apart from slight detentions *en route*, incidental to transfers, no other delays will be permitted for any cause.

9.—Any foreign passengers by this line who may proceed into the interior away from the railway must be provided with Chinese passports authorising them to proceed. Any person unprovided with such passports must be forbidden by the Company to proceed into the interior.

10.—All goods and baggage coming from Russian territory, and again entering Russian territory by this line, will be exempt from taxation, but such goods and baggage, with the exception of personal luggage with passengers, must be carried by the Company in special vans,



and sealed by the Customs officers on entering Chinese territory, and on leaving Chinese territory they must be examined by the Customs officers to ascertain that the seals are intact, in which case they will be allowed to pass. If it be found that the seals have been opened *en route* the goods will be confiscated.

As to goods conveyed by this line from Russia to China or from China to Russia, they will pay duty according to the Treaty tariff, *i. e.* an import or export duty, as the case may be, but subject to a reduction of  $\frac{1}{3}$  of the tariff rate. If such goods be conveyed to the interior they must pay transit duty in addition, *i. e.* half the amount of the duty already paid. Transit duty being paid, they are not to be taxed again on passing Customs stations or

likin barriers. But if transit duty be not paid, they must pay duty at stations and at likin barriers. China must establish Customs stations at the two points where the line crosses the frontier.

11.—Fares for passengers, freight for goods, and charges for loading or unloading will be fixed by the Company. Chinese Government despatches and letters must be carried by the Company free of cost. Chinese troops and munitions of war will be carried at half rates.

12.—From the day of completion of the railway and the commencement of traffic, for a period of eighty years, all profits made by the line shall belong to the Company solely. Any loss must likewise be borne by it; the Chinese Government cannot be responsible. After

eighty years the line and all its property are to revert to the Chinese Government without payment.

Thirty-six years after commencement of traffic China may take over the line on payment of the following and all capital and all moneys owed on account of the line and interest. As to profits made by the Company, should there be any not distributed to shareholders, these must be taken to be capital returned and deducted from the price paid for the line. China must actually pay over the amount of purchase to Russia before receiving possession of the line.

On the day the line is completed and traffic commenced, the Company will pay the Chinese Government five million Treasury taels.

#### PRELIMINARY AGREEMENT AND CONTRACTS CONCERNING THE CHENGTING-TAIYUAN (CHENG-TAI) RAILWAY, 1898-1903.

(1) DRAFT OF AGREEMENT BETWEEN FANG, SUPERINTENDENT OF THE LIU-LIN-TAIYUAN RAILWAY CO. (UNDERSTOOD TO BE ACTING UNDER AUTHORITY FROM THE GOVERNOR OF SHANSI) AND POKOTILOV, DIRECTOR OF THE RUSSO-CHINESE BANK, FOR THE PROVISION OF A LOAN TO CONSTRUCT A RAILWAY FROM LIU-LIN (*i. e.* CHENGTING, A POINT ON THE PEKING-HANKOW LINE TO THE SOUTH OF THE HU-TO RIVER) TO TAI-YUAN-FU IN SHANSI.

The line is to run from Chengting to the coal mines on the Wei-shui river to the north of Pingting, and thence to Taiyuan. The cost—including "official profits" (*kuan-li*)—is estimated at Tls. 6,800,000. As it is impossible to raise this amount in China, Fang agrees to accept a temporary advance from the Russo-Chinese Bank on the following terms:

1. A Company will be formed to construct the railway, and the Company will borrow Tls. 6,800,000 necessary from the Bank. Interest 6 per cent from the date of advance.

2. The exact amount required will be determined after the completion of the surveys and estimates.

Until the railway is opened to traffic the interest will accrue, and be added to the principal of the loan. Should the traffic receipts during the two years following the opening be insufficient to pay the interest the deficiency will also be added to the loan capital. At the close of these two years, all the moneys owing to the bank by the Company on principal and interest must be reckoned up and interest paid on the full amount at 6 per cent per annum. All surplus profits, excluding "official profits" (*kuan-li*) made within five years from the opening of the railway to be deposited in the Bank, the amount to go to the redemption of the loan at the end of the five years. The Bank to pay 4 per cent on the amounts so deposited.

Dating from the sixth year after the opening of the line the Company agree to pay off the interest and principal due to the Bank by quarterly instalments, extending over 25 years; such instalments to be paid in gold at current rates.

3. The Company may at will redeem the loan before the limit of the time specified.

The Company may issue share certificates to the amount of the loan, which are to be deposited with the Bank as security. Within the 25 years' limit certificates to the amounts redeemed from year to year will be handed over to the Company by the Bank. If, before the loan is redeemed, the Chinese public consider these shares a good investment, the Company may purchase them from the Bank and issue them a premium of 20 per cent.

Should the Company redeem the debt due to the Bank in either of the two ways stated above, the Bank will have no further concern with the railway.

4. The Bank will decide in consultation with the Company all questions of route gauge, position of stations, amount of rolling stock, etc. All the construction and works will be executed under the supervision of the Company.

The Bank engages to use local materials and labor as far as possible, and in any case to spend the greater part of the loan on the spot. As little material as possible is to be

procured from abroad, but whatever is thus obtained must come from Russian or French territory. All such materials are to be purchased by the Bank at the most reasonable prices, and questions as to the reasonableness of the prices are to be settled by reference by the Company to the Chinese Ministers in Russia and France.

5. During the whole 30 years or-and while the loan is unredeemed, the high authorities of Shansi shall, at the request of the Company, interdict the construction of another railway or other mechanical means of transport between Liu-lin and Taiyuan-fu, as such would be detrimental to the interests of this railway.

6. The Company will see to the acquisition of the land required for the railway in accordance with the provisions of Chinese law. The regulations for the purchase of the land will be drawn up by the Company and approved by the Governor of Shansi who will be requested to instruct the local authorities to surrender or let whatever Government land is required for the railway line. As to private ground, graves, bridges, rivers, and roads, the regulations of the Tientsin railways will be followed, and reasonable compensation will be awarded. The local officials are to lend every assistance and to check disorder. In other matters the established precedents ruling in the railways already opened to traffic in Chihli are to be followed.

The price of the ground will be arranged by the Company with the owner, and the money handed over in the presence of a representative at the Bank specially appointed for that purpose. This will prevent irregularities.

The Bank will prepare detailed plans of the railway and send them to the Company, and the Company are given six months from the date of receipt of the plans within which to secure the land required for the track.

7. The Governor of Shansi will be moved to exempt from likin charges all railway material. Import and transit dues paid to the Imperial Maritime Customs are not included in this exemption.

8. The administration of the railway will rest with the Company. Mr. Fang will procure the assistance he needs, and from the date of the approval of this agreement Tls. 10,000 a year will be advanced to him to cover the salaries of himself and assistants.

Before the opening of the railway and traffic these salaries will be advanced by the Bank and the amounts will be added to the loan accounts. After the opening they will be paid out of receipts by the Company. If there is a surplus after the payment of all expenses out of the receipts, it will rest with the Company to decide whether the remuneration above mentioned shall be increased. The Foreign Agent of the Bank will be present at all meetings of the Managing Officers and will exercise supervision over all matters of accounts, machinery, etc.

9. The Foreign Agent will be specially appointed by the Bank after the completion of the railway to inspect the accounts, receipts, and expenditure. The accounts will be kept after foreign methods. He will also inspect the permanent way, machinery, stations, etc., and see that they are kept in good working order, and free from dilapidations. He will have

foreign assistants, but their number will be kept as low as possible. The salaries of the Agent and his staff, which are not to exceed 100,000 francs or say Tls. 30,000 a year, will be paid by the Company. With these exceptions the personnel will be Chinese. As a temporary arrangement, however, China not possessing capable machinists, foreign artificers will be engaged by the Bank to work the machinery, but as soon as Chinese are available for this purpose the foreigners will be sent home. It is fully expected that Chinese will be employed as machinists before many years are over, and to attain this end the Superintendent is at liberty to establish engineering and mining schools near at hand, and to engage foreign instructors to teach 10 to 20 selected Chinese youths of capacity who may also be sent abroad to complete their knowledge.

The Board will assist the Company as far as possible in its efforts to dispense with foreign assistance and to secure capable Chinese machinists without delay.

10. After the completion of the railway the yearly surplus, if any, left after payment of working expenses and "official profits," is to be dealt with as follows:

5-10ths to the Company. Should this 5-10ths amount to 30,000 taels or over, the Superintendent's salary will be paid out of it; if the 5-10ths do not amount to Tls. 30,000 the salary will form part of the working expenses.

2.10ths to the State.

1-10th to the Trade Bureau to be used for public purposes, and 2-10ths to the Bank—this payment to cease at the end of 30 years from the opening of the line. Should the Company be able to redeem the loan before this limit of time as provided for under Article 3, the Bank's 2-10ths will cease with such redemption.

11. The Bank will first undertake the construction of the first section to the coal mines of Ping-ting; this to be completed within 3 years from the acquisition of the ground required, according to the plans. This section finished, the Bank engages to begin work on the 2nd section from the coal mines to Taiyuan Fu within two years. If it fails to do so the Company is free to discharge the Bank from the contract and hand the work over to others to undertake. The Bank, in this case, is to hand over the surveys, estimates, and other documents relating to the 2nd section to the Company without payment therefor and without objection to the Company's action.

12. In case of default in the payment of principal and interest, the administration of the railway will pass temporarily into the hands of the Bank, but the Company will continue its supervision. The Superintendent, etc., will continue to meet and consult as before and the salaries will continue to be advanced in the manner stated in Article 8. The Bank will not under these circumstances be considered as entering into possession of the railway; it will simply administer on behalf of the Company until the loan and interest are paid in full, when the administration will be returned to the Company.

13. Superintendent Fang will move the local authorities to permit the Company, through the Trade Bureau, to select a few coal and iron mines in the country adjoining the railway.



places granted to other persons being excluded from the selection.

Within a year from the approval of this agreement the Bank will indicate a few coal and iron mines which it will be able to work as soon as the necessary authorization is received from the Governor of Shansi through the Trade Bureau. But the number of mines thus selected must not exceed four or five.

Superintendent Fang will also be authorised to choose a convenient site for glass works, the funds for the establishment of which will be provided by the Bank.

The financial terms relating to the mines and glass works will follow the same lines as those relating to the railway; 2-10ths of the surplus after payment of working expenses and "official profits" will go to the Bank in payment of principal and interest. In case of default the management of all the mines and the glass-works will revert to the Bank who will retain it until the loans and interest are redeemed.

14. This loan being a commercial arrangement made between Russian and Chinese merchants, it is understood that the Governments of China and Russia are in no way concerned.

15. This instrument is only preliminary. When it has been approved by the Governor of Shansi and authorised by the Emperor, it will as it stands become definite.

(2) LOAN AND OPERATING CONTRACTS FOR THE CHENG-TING AND TAI-YUAN RAILWAY.

Extracts.

(Translation).

#### LOAN CONTRACT

Between the undersigned:

(1) The Imperial Chinese Railway Company, represented by H. E. Sheng Hsuan-huai, its Director General, duly empowered by the Chinese Government;

(2) The Russo-Chinese Bank, represented by Mr. C. R. Wehrung, one of its directors, with full powers, acting for said Bank;

It has been agreed as follows:

#### ARTICLE I.

Under the terms of the Imperial Edict of July 8, 1897, and May 17, 1898, i. e., 9th day, 6th moon, 23rd year, and the 24th day, 3rd moon, 24th year of the reign of H. M. Kuang-hsu, the Governor and the Director of the Commercial Bank of Shansi were authorised to sign a loan contract with the Russo-Chinese Bank for the building of a railway from Cheng-ting Fu to Tai-yuan Fu.

This line, having a length of about 250 kilometers, forms a natural branch of the Hankow-Peking line; consequently the Governor of Shansi, in a report dated June 25, 1902, i. e., 18th day, 5th moon, 28th year of the reign of H. M. Kuang-hsu, proposed to the Chinese Government to instruct the Director of the Imperial Chinese Railway Company to personally take up the matter.

The recommendation was approved, and H. E. Sheng Hsuan-huai, Director General of the Imperial Chinese Railway Company, received instructions from the Chinese Government, in virtue of a Decree of September 7, 1902, i. e., 6th day, 7th moon, 28th year of the reign of H. M. Kuang-hsu, as a consequence of a joint report presented by the Wai-wu-pu and the Central Bureau of Mines and Railways, to negotiate a new loan contract for said railway with the Russo-Chinese Bank. Before

signing the present contract, H. E. Sheng Hsuan-huai has submitted it for ratification by the Chinese Government which has ratified it by a Decree of . . . . . of which a copy is annexed to the present contract (Annex No. 1.)

Under the terms of this Edict H. E. Sheng-Hsuan-huai has decided to make a State foreign 5% gold loan, of a nominal value of 40,000,000 francs.

This loan will be known as the Chinese 5% 1902 Loan.

It is understood that the present contract, after being signed, shall annul all preceding contracts relating to the railway from Cheng-ting Fu to Tai-yuan Fu, signed by the Governor of Shansi, in favor of the Russo-Chinese Bank.

#### ARTICLE II.

This loan shall be represented by 80,000 bonds of 500 francs gold. These bonds, the text of which is annexed (Annex No. 2) to the present contract, shall be signed in the name of the Chinese Government by the Minister plenipotentiary of China at Paris, duly advised by his Government.

They shall be issued in fractional bonds (coupures) of from 1 to 5 bonds, in such proportion as the Russo-Chinese Bank shall state and shall be made at the expense of the latter.

They shall bear 5% interest a year on the nominal capital, payable in gold. Interest shall run from the day of payment of instalments (du jour des versements) and shall be payable the 1st September and the 1st March of each year.

Matured and paid coupons shall be classed in numeric order, by the Russo-Chinese Bank and at its expense.

(Articles III, IV, V, VI, VII, VIII, IX, X, XI, XII, and XIII are mutatis mutandis, the same as the articles bearing the same numbers in Document No. 58 infra).

#### ARTICLE XIV.

(Same as Art. XIV in No. 58 with exception of last two phrases of latter which are here omitted).

#### ARTICLE XV.

(Same as Art. XV in No. 58).

#### ARTICLE XVI.

(Same as Art. XVI in No. 58 with the words "Bourses of Petersburg and of Paris" instead of "Bourses of the capitals of Europe.")

#### ARTICLE XVII.

Of the whole amount of the present loan, amounting to a nominal capital of 40,000,000 francs, the Russo-Chinese Bank buys outright 22,000,000 francs of nominal capital, or 44,000 bonds of 500 francs, delivery to date from payment to the Agency of the Russo-Chinese Bank at Paris, at the price of 90%, that is to say for the total sum of 19,800,000 francs.

#### ARTICLE XVIII.

(Substantially the same as Art. XVIII, in No. 58).

#### ARTICLE XIX.

(Same as Art. XIX in No. 58, with omission of first five and the last paragraphs. Last paragraph reads: "It (the Russo-Chinese Bank) will endeavor to finish the work on the line within a term of three years.")

#### ARTICLE XX.

(Substantially the same as Art. XX in No. 58).

#### ARTICLE XXI.

The Chinese Government gives the Russo-Chinese Bank an option to December 31, 1905, to purchase the balance of the loan, or 18,000,000 francs, and at the price of 90% of par value.

Said option may be availed of at one or several times, regardless of the amortizations made. Delivery of the bonds taken on the options will be made at the Russo-Chinese Bank in Paris, which will only surrender them under the conditions and terms provided for in the above Article XX.

#### ARTICLE XXII.

If the Russo-Chinese Bank should avail itself of the right given it to purchase all or a portion of the securities for which it has an option granted it, it shall come to an agreement in each case with the Imperial Chinese Railway Company to determine the section (of line) to be built with the new funds.

#### ARTICLE XXIII.

Studies for the line, dating from the signing of the present contract, are in the expense of the Imperial Chinese Railway Company. The whole line shall be divided into two principal sections: The first from Cheng-ting Fu to P'ing-t'ing on the left bank of the Weishui River, to the north of P'ing-t'ing Chou, and the second from that point to Tai-yuan Fu.

It is hereafter to be understood that the section to be built with the funds derived from the first option, will be that from Cheng-ting Fu to P'ing-t'ing and that studies for it will begin the first year.

Within two months from the date of ratification of the present contract, the Russo-Chinese Bank will place at the disposal of the Director-General of the Imperial Chinese Railway Company a sum of 1,000,000 francs as an advance on the proceeds of the loan.

This sum, it is understood, can only be applied to studies and construction work on the Shansi railway. The rate of interest on this advance is fixed at 6% annually, regardless of the price of issue.

The first option must be taken up within eleven months from the date of signing the present contract; the proceeds of said option shall be applied in the first place to refunding the above mentioned advance.

#### ARTICLE XXIV.

The Russo-Chinese Bank reserves the right to make one or more issues, by public subscription or otherwise, of the whole or a part of the bonds bought outright, or forming a part of the option; the expense of such issues to be borne, of course, by the Russo-Chinese Bank.

#### ARTICLE XXV.

(Substantially the same as Art. XXIV in No. 58).

#### ARTICLE XXVI.

(Same as Art. XXV in No. 58 except that cases of disagreement between the parties to the contract are to be settled by the Russian Minister at Peking and a member of the Chinese Foreign Office or by a judge of their choice).

#### ARTICLE XXVII.

(Same as first phrases of first paragraph of Art. XXVI in No. 58).

#### ARTICLE XXVIII.

(Same as Art. XXVI, in No. 58, exclusive of first phrase).

## JAPAN

### SUMMARY OF SECRET PROTOCOLS TO PEKING TREATY OF DECEMBER 22D, 1905, WITH REFERENCE TO RAILWAYS.

1. The railway between Changchun and Kirin will be constructed by China with capital to be raised by herself. She, however, agrees to borrow from Japan the insufficient amount of capital, which amount being about one-half of the total sum required. The contract concerning the loan shall, in due time, be concluded, following, mutatis mutandis, the loan contract entered into between the board of the Imperial Railways of North China and the Anglo-Chinese Syndicate. The term of the loan shall be twenty-five years, redeemable in yearly installments.

2. The military railway constructed by Japan between Mukden and Hsin-min-tun shall be sold to China at a price to be fairly determined in consultation by Commissioners appointed for the purpose by the two Governments. China engages to reconstruct the line, making it her own railway, and to borrow from a Japanese corporation or corporations one-half of the capital required for the portion of the line east of Liao-ho for a term of eighteen years repayable in yearly installments, and a contract shall be concluded, for the purpose following, mutatis mutandis, the loan contract entered into between the Board of the Imperial

Railways of North China and the Anglo-Chinese Syndicate.

All the other military railways in different localities shall be removed with the evacuation of the regions.

3. The Chinese Government engage, for the purpose of protecting the interest of the South Manchurian Railway, not to construct, prior to the recovery by them of the said railway, any main line in the neighborhood of and parallel to that railway, or any branch line which might be prejudicial to the interest of the above-mentioned railway.



## THE Hsinminting-Mukden and Kirin-Kwangchengtze Railways.

Convention between Japan and China.

Consuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan, and Na Tung, Ch'u Hungchi and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective Governments, have agreed upon the following articles:

1.—The Chinese Government being desirous of purchasing the Hsinminting-Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese gold yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2.—The Chinese Government, being about to construct a railway line herself from Kirin to Kwangchengtze, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3.—The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the Loan Contract of the railways inside and outside Shan-hai-kuan. The most important conditions are mentioned below. The regulations for the management of the railway line shall correspond with the methods at present employed by the General Office of the railway lines inside and outside Shan-hai-kuan.

(a) The periods within which the loans shall be repaid shall be for that of the Hsinminting-Mukden line east of the Liao River, eighteen years, and for the Kirin-Kwangchengtze line twenty-five years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(b) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsinmin-Mukden line east of the Liao River shall be the real property of the aforesaid section and its earnings.

The security for the mercantile shares to be issued by the Kirin-Kwangchengtze Railway Administration, as well as for the loan to be made from the Southern Manchurian Railway

Company, shall be the real property of the said railway and its earnings.

So long as these loans are not repaid by the Chinese Government, the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock and road bed of the section of the Hsinmin-Mukden Railway east of the Liao River, and of the Kirin-Kwangchengtze Railway, shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be regarded to satisfy the demand of the traffic.

If the Kirin-Kwangchengtze line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but if there should be a lack of capital, application shall be made to the Southern Manchurian Railway Company for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(c) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it will be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be granted as an accommodation, but never for more than three months.

(d) During the periods of these loans the Engineer in Chief employed shall be a Japanese, and should there be an insufficient supply of Chinese for the various posts in the service of the railways, Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer in Chief, consultation must first be had with the (Southern Manchurian Railway) Company before

appointment may be made. There shall also be appointed one Japanese Accountant, who must be thoroughly qualified, and who shall have entire responsibility for the arrangement and oversight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director-General.

(e) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either line free of charge whenever military affairs or measures of relief shall require.

(f) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4.—The Chinese Government, immediately after the purchase of the present Hsinmin-Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Kwangchengtze line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Company for the loan.

5.—The lines from Hsinmin to Mukden, and from Kirin to Kwangchengtze, under the management of China, must connect with the Southern Manchurian Railway line. The Tientsin-Shan-hai-kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6.—The rate at which the loans specified in Articles 1 and 2 shall be issued, shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7.—Within one month after the payment of the purchase price of the Hsinmin-Mukden Railway the Chinese Railway Administration shall appoint officers to take control of the sums.

Japanese Calendar, Meiji XLth Year, fourth Month, 15th Day.

Chinese Calendar, Kuanghsu XXXIIIrd Year, Third Moon, 3rd Day (April 15, 1907).

## CONVENTION BETWEEN JAPAN AND CHINA REGARDING THE Hsin-min Mukden and the Kirin-Ch'angch'un Railways. SIGNED AT PEKING, APRIL 15TH, 1907. (TRANSLATED)

Gonsuke Hayashi, Envoy Extraordinary and Minister Plenipotentiary of Japan and Na-t'ung, Ch'u Hungchi, and Tong Shao-i, Ministers of the Imperial Chinese Board of Foreign Affairs, having been appointed thereto by their respective governments, have agreed upon the following articles:

1. The Chinese Government, being desirous of purchasing the Hsin-min Fu Mukden Railway, constructed by Japan, hereby agrees that the purchase price thereof shall be Japanese Gold Yen 1,660,000, to be paid through the Yokohama Specie Bank at Tientsin.

The status of this railway shall be changed by the Chinese Government to that of the lines built by China herself, and it is agreed that one-half of the capital needed for that part of the line east of the Liao River shall be borrowed from the Southern Manchurian Railway Company.

2. The Chinese Government, being about to construct a railway line herself from Kirin to Ch'ang-ch'un Fu, agrees to borrow from the aforesaid Company one-half of the capital needed for this work.

3. The conditions of the loans provided for in Articles 1 and 2, with the exception of the periods within which they are to be repayable, shall be in all respects similar to those of the loan contracts of the Railways Inside and Outside Shan-hai Kuan. The most important conditions are mentioned below. The Regu-

lations for the management of the railway lines shall correspond with the methods at present employed by the General Office of the Railway Lines Inside and Outside Shan-hai Kuan.

(a) The periods within which the loans shall be repaid shall be for that part of the Hsin-min Mukden Line east of the Liao River 18 years, and for the Kirin-Changchun Line 25 years.

No repayment in full of these loans shall be allowed before the expiration of the periods named.

(b) The security for the loan from the Southern Manchurian Railway Company for that part of the Hsin-min Mukden Line east of the Liao River shall be the real property of the aforesaid section and its earnings.

The security for the mercantile shares to be issued by the Kirin Changchun Railway Administration as well as for the loan to be made from the Southern Manchurian Railway Company shall be the real property of the said Railway and its earnings.

So long as these loans are not repaid by the Chinese Government, the aforesaid property and earnings of the above-named lines shall not be pledged as security for any other loan.

During the periods of these loans the Chinese Government agrees that the buildings, machinery, rolling-stock, and road-bed of the section of the Hsin-min Mukden Railway east of the Liao River, and of the Kirin-Changchun Rail-

way shall be kept in good condition, and furthermore that such additions will be made to the rolling-stock from time to time as may be required to satisfy the demands of the traffic.

If the Kirin-Changchun Line should hereafter build branch lines or an extension, the construction of such lines shall rest of right with the Chinese Government, but, if there should be a lack of capital, application shall be made to the (Southern Manchurian Railway Company) for an arrangement. Should China, however, appropriate funds herself for the construction of any other railway lines than those mentioned, it shall not concern the Southern Manchurian Railway Company.

(c) The loans and the interest thereon are guaranteed by the Chinese Government, and should there be any failure to make payment of interest or re-payment of principal at the proper periods, the Company shall at once notify the Chinese Government, which shall pay over to the Company the amount of the shortage. If the Chinese Government, after such notification by the Company, shall be unable to make good the deficit in the payments of principal or interest, the line in question with its real property shall be handed over to the temporary control of the Company until the shortage is made good, after which it shall be returned to the control of the Railway Administration.

If, however, the shortage be for a small amount only, an extension of time shall be



granted as an accommodation, but never for more than three months.

(d) During the periods of these loans the Engineer-in-Chief employed shall be a Japanese and should there be an insufficient supply of Chinese for the various posts in the service of the railways; Japanese may be employed with the Chinese. If at any time it shall become necessary to change the Engineer-in-Chief, consultation must first be had with the (Southern Manchurian Railway) Company before appointment may be made. There shall also be appointed one Japanese accountant, who must be thoroughly qualified, and who shall have entire responsibility for the arrangement and over-sight of the various accounts of the railways, but in his supervision of receipts and expenditures he must consult and act with the Director General.

(e) The railways mentioned being Chinese Government lines, the latter shall have the right to transport soldiers and subsistence over either

line free of charge whenever military affairs or measures of relief shall require.

(f) All earnings of the railways in question must be deposited in Japanese banks. As to the terms upon which such deposits shall be made, satisfactory arrangements shall be agreed upon by the parties concerned when the loan contracts are drawn up.

4. The Chinese Government, immediately after the purchase of the present Hsin-min Mukden Railway, shall enter into a contract with the Southern Manchurian Railway Company for the loan in connection with that section of the line east of the Liao River, and shall also appoint and direct a Chinese engineer to consult and act with the Japanese engineer in making a survey of the Kirin-Changchun Line to furnish a basis for estimating the amount of the loan needed for the construction of the line, and within six months after the completion (of the survey) shall enter into a contract with the Southern Manchurian Railway Co. for the loan.

5. The lines from Hsin-min to Mukden and from Kirin to Changchun under the management of China must connect with the Southern Manchurian Railway line. The Tientsin Shan-hai Kuan Railway Administration and the Southern Manchurian Railway Company shall appoint representatives to consult together and draw up the necessary regulations.

6. The rate at which the loans specified in Articles 1 and 2 shall be issued shall be determined fairly in accordance with the terms of the most recent loan negotiated by China with any foreign country.

7. Within one month after the payment of the purchase price of the Hsin-min Mukden Railway, the Chinese Railway Administration shall appoint officers to take control of the same.

Japanese Calendar, Meiji XLth Year, Fourth Moon, 15 Day.

Chinese Calendar, Kuanghsu XXXIIIrd Year, Third Moon, 3rd Day (April 15, 1907.)

# IMPERIAL ORDINANCE SANCTIONING ORGANIZATION OF SOUTH MANCHURIA RAILWAY JOINT STOCK COMPANY.—ISSUED JUNE 7, 1906.

(Translated from Japanese.)

We hereby sanction the organization of the South Manchuria Railway Joint Stock Company and cause the following Ordinance to be promulgated.

(Sign Manual.)  
(Privy Seal.)

June 7, 1906.

(Countersigned) MARQUIS KIMMOCHI SAIONJI,  
*Minister President of State.*

(Countersigned) ISABURO YAMAGATA,  
*Minister of State for Communications.*

IMPERIAL ORDINANCE No. 142, JUNE 7, 1906.

ARTICLE 1. The Government shall cause the organization of the South Manchuria Railway Joint Stock Company for the purpose of engaging in railway traffic in Manchuria.

ART. 2. The shares of the company shall all be registered and may be owned only by the Japanese and Chinese Government or by subjects of Japan and China.

ART. 3. The Japanese Government may offer its Manchurian Railways, and their appurtenances, and its coal-mines in Manchuria, as the capital to be furnished by the Government.

ART. 4. The company may divide the new shares to be raised into several issues to be floated at different times, but the amount of the first issue shall not be less than one-fifth of the whole amount.

ART. 5. The first payment upon the shares need not exceed one-tenth of the value of the shares.

ART. 6. The company shall establish its head-office at Tokio and a branch office at Dalny.

ART. 7. The company shall have a president, a vice-president, four or more directors and from three to five inspectors.

ART. 8. The president shall represent the company and manage its affairs.

The vice-president shall perform the president's duties when the latter is prevented from discharging them, and shall act as president when the latter post is vacant.

The vice-president and directors shall assist the president in his duties and shall take charge of the various departments of the company's business.

The inspectors shall examine the business of the company.

ART. 9. The Government, subject to the Imperial sanction, shall appoint the president and vice-president, whose terms of office shall be five years.

The Government shall appoint the directors from among those shareholders who own fifty or more shares. The term of office shall be four years.

The inspectors shall be elected from among the shareholders at a general meeting of the latter. The term of office shall be three years.

ART. 10. The amount of compensation and allowances of the president, vice-president and directors shall be fixed by the Government.

ART. 11. The president, vice-president and directors of the company shall not engage in any other business or trade, under any name whatsoever, during their terms of office except by special permission of the Government.

ART. 12. The Government shall appoint supervisors for the South Manchuria Railway Joint Stock Company to supervise the business of the company.

The supervisors may at any time examine the company's business and inspect their safes, books, documents and any other articles belonging to the company.

The supervisors, whenever they may deem it necessary, may order the company to report on the various accounts and the condition of the company's business.

The supervisors may attend the general meetings of the shareholders of the company, or any other meetings, and express their opinions, but shall not be entitled to vote.

ART. 13. The Government may issue such orders as may be necessary to superintend the business of the company.

ART. 14. In case the decisions of the company or the conduct of its officers are in violation of laws and regulations or of the object of the company, or are detrimental to the public welfare, or fail to carry out the orders of the Government office under whose jurisdiction the company is, the Government may cancel the said decisions or dismiss the officers concerned.

ART. 15. When the Government deems it necessary, it may apply to the company the provisions of the laws and regulations relating to railways in Japan.

In the case referred to in the preceding paragraph, the Government shall inform the company in advance as to the laws and regulations to be so applied.

ART. 16. When not otherwise provided for in this Ordinance, the provisions of the Commercial Code and its Supplementary Laws and Regulations shall be applied.

ART. 17. The provisions of Imperial Ordinance No. 366a of 1900 shall not be applied to the company that is to be organized in accordance with this Ordinance.

## SUPPLEMENTARY RULES.

ART. 18. The Government shall appoint a commission to transact all business relating to the organization of the South Manchuria Railway Joint Stock Company.

ART. 19. The organizing commission shall draw up the company's articles of association, and after the said articles have been approved by the Government, shall open the subscriptions for the first issue of shares.

ART. 20. When the first issue of the company's shares has been subscribed, the commission shall present to the Government the subscription list and apply for permission to organize the company.

ART. 21. When the permission referred to in the preceding Article has been given, the organizing commission shall, without delay call for the first instalment upon each share.

When the first instalment referred to in the preceding Article has been paid in, the commission shall, without delay, call a general meeting for organization.

ART. 22. At the close of the first general meeting the organizing commission shall turn over its business to the President of the South Manchuria Railway Joint Stock Company.

## GOVERNMENT ORDER CONCERNING THE SOUTH MANCHURIAN R. R. JOINT STOCK COMPANY AND ARTICLES OF INCORPORATION. ISSUED AUGUST 1, 1906. (TRANSLATED FROM JAPANESE.)

To Masatake Terauchi, Chairman of the Organizing Commission of the South Manchurian Railway Joint Stock Company, and eighty other members of the Commission:

The following orders are hereby given respecting the several matters relating to the organization of the South Manchurian Railway Joint Stock Company, all matters pertaining to the management of which have been entrusted to the Commission.

August 1, 1906.

ISABURO YAMAGATA,  
*Minister of Communications.*

YOSHIRO SAKATANI, LL.D.,  
*Minister of Finance.*

VISCOUNT TADASU HAYASHI,  
*Minister for Foreign Affairs.*

ARTICLE 1. In accordance with the Additional Agreement of the Japan-China Treaty relating to Manchuria, signed on December 22, 1905, the company shall engage in the traffic of the following railways:

Tairen-Changchun.  
Nankuanling-Port Arthur.  
Tafangshen-Liushutun.  
Tashichiao-Yingkow.  
Yentai-Yentai Coal Mine.  
Sukiatun-Fushun.  
Mukden-Antungchien.

ART. 2. The railways mentioned in the preceding Article shall be changed to the 4 feet 8.5 inch gauge within three (3) years counting from the day on which the company commences its operations.

On the Tairen-Changchun Railway the tracks between Tairen and Sukiatun shall be doubled.

ART. 3. The company shall make the various arrangements necessary for the lodging and meals of the passengers, as well as for the storage of goods at the principal stations on the line.

At the points on the harbors and bays touched by the railways the necessary arrangements shall be made for connecting water and land transportation.

ART. 4. For the convenience and the profit of the railways, the company may engage in the following accessory lines of business:

Mining, especially the operation of the coal mines at Fushun and Yentai.  
Water transportation.



Electrical enterprises.  
Sale on commission of the principal goods carried by the railways.  
Warehousing.

Business relating to the land and buildings on the land attached to the railways.

In addition, any business for which Government permission has been given.

ART. 5. The company shall, subject to the permission of the Government, make the necessary arrangements for engineering works, education, sanitation, etc., within the area of lands used for the railways and the accessory lines of business.

ART. 6. To defray the expenses necessary for the arrangements mentioned in the preceding Article, the company may, subject to the permission of the Government, collect fees of those who live within the area of lands used for the railways and the accessory lines of business, or make any other assessments for necessary expenses.

ART. 7. The total amount of the company's capital stock shall be 200 million yen, of which 100 million yen shall be furnished by the Imperial Government.

ART. 8. The capital to be furnished by the Government mentioned in the preceding Article shall consist of the following properties:—

The existing railways.

All properties belonging to the railways, except those in the leased territory specially designated by the Government.

The coal mines at Fushun and Yentai.

ART. 9. The rolling stock now being used by the Government, and the rails as well as the accessories of the Mukden-Antunghien temporary railway, shall be sold to the company at a reasonable price.

ART. 10. The shares not owned by the Government shall be open to subscription by Japanese and Chinese subjects.

ART. 11. When the dividend of the company for any business year is less than six (6) per cent per annum on the paid amount for the shareholders other than the Government of Japan and China (hereafter to be styled merely "the shareholders"), the Government shall supply the deficiency for a period of fifteen (15) years only, (or for thirty (30) business years if the calendar year be divided into two business years), commencing from the day of the registration of the company's establishment. However, the amount of money to be furnished by the Government to supply the deficiency referred to shall, under no circumstances, exceed six (6) per cent per annum on the capital paid in by the shareholders.

ART. 12. When the dividend of the company for any business year does not exceed six (6) per cent per annum on the capital paid in by the shareholders, the dividend on the shares owned by the Government need not be paid.

The shares owned by the Chinese Government shall be dealt with in a similar way to those owned by the Imperial Government.

ART. 13. The Government shall guarantee the payment of interest on the debentures which the company may issue for the reconstruction of the railways, or for the operation of the accessory business, and on those which the company may issue for consolidating or redeeming these debentures. The Government, shall, if necessary, guarantee the repayment of the principal.

The amount of the face value of the debentures to be guaranteed by the Government shall not exceed the amount remaining when the capital paid in by the shareholders other than the Government is subtracted from the total of the capital subscribed by them.

The debentures mentioned in the first paragraph shall be redeemed within twenty-five (25) years counting from the year of their issuance.

ART. 14. For the debentures issued in accordance with the provisions in the first paragraph of the preceding Article, the Government shall supply the amount corresponding to the interest on the debentures.

When the dividend on the capital paid up by the shareholders exceed six (6) per cent per

annum, the surplus shall first be applied to the payment of the interest on the debentures. However, in this case the amount of surplus shall be deducted.

ART. 15. When there is any surplus after paying the interest on the debentures, as mentioned in the preceding Article, out of the profits of the company's business, the said surplus shall be apportioned to the shares owned by the Governments of Japan and China until the rate is equal on the respective amounts paid up by all shareholders.

ART. 16. The money to be supplied by the Government, as provided for in Articles 11 and 14, shall bear interest at six (6) per cent per annum. The interest shall be added annually to the principal and the total shall be the company's indebtedness to the Government.

When the dividend for all the shares exceeds ten (10) per cent per annum, the surplus shall be devoted to the redemption of the company's debt mentioned in the preceding paragraph.

ART. 17. Any surplus of funds raised by means of the debentures mentioned in Article 13 shall be deposited with the Division of Deposits in the Department of Finance.

ART. 18. The company shall determine estimates of the capital to be paid up and the debentures to be floated during each business year, their face value, issuing price, rate of interest, date of issuance et cetera, and shall receive the Government's approval.

ART. 19. The company shall determine the regulations relating to its finances and business, and shall secure the Government's approval.

When the company desires to alter the regulation mentioned in the preceding paragraph and the articles of incorporation, similar steps shall be taken.

ART. 20. The plans of the company's business, the estimate of the cost of operation, the budget of income and expenditures connected with the Company's business, the settlement of the same and the rate of the dividend for each business year shall be submitted to the Government for approval. When the company desires to alter the foregoing items, similar steps shall be taken.

ART. 21. At the designation of the Government the company shall report on the following matters:—

The present conditions of the cost of operation as well as the income and expenditure connected with the company's business.

The actual condition of the company's work in general.

ART. 22. Without the permission of the Government the company shall not dispose of its principal rights and properties; nor give the same for security.

ART. 23. When the Government deems it necessary, it may order the freight charges to be reduced, but only under special conditions.

ART. 24. The Government may, when it deems necessary, order the company to make new works arrangements or modify the existing ones.

ART. 25. At the designation of the Government the company shall be under obligation at any time to place the railways, land and any other articles at the service of the Government.

ART. 26. The Articles and paragraphs relating to the funds to be supplied by the Government and the Government guarantees mentioned in the present order shall be confirmed upon the approval of the Imperial Diet.

## THE ARTICLES OF INCORPORATION OF THE SOUTH MANCHURIAN RAILWAY JOINT STOCK COMPANY.

### CHAPTER I. GENERAL PROVISIONS.

ARTICLE 1. This company shall be called the South Manchurian Railway Joint Stock Company and is established in accordance with Imperial Ordinance No. 142 of 1906 and in obedience to the Order of the Imperial Japanese Government.

ART. 2. The liability of the shareholders of this company is limited to the value of the shares owned by them

ART. 3. This company shall establish its head-office at Tokyo and its branch office at Tairen.

ART. 4. The objects of this company are as follows:

1. To engage in the transportation business of the following railways in Manchuria:

Tairen-Chanchung Railway.  
Nankuanling-Port Arthur Railway.  
Tafangshin-Liushutun Railway.  
Tashichiao-Yingkow Railway.  
Yentai-Yentai Coal-Mine Railway.  
Sukiatun-Fushun Railway.  
Mukden-Antunghien Railway.

2. To engage in the following lines of accessory business for the benefit of the railways:

Mining, especially the operation of the coal mines at Fushun and Yentai.

Water transportation.

Electrical enterprises.

Warehousing.

Business relating to the land and buildings on the land attached to the railways.

Any other business for which the permission of the Government may be given.

ART. 5. The capital of this company shall be 200,000,000 yen. However, the amount of the first subscription of shares shall be yen 20,000,000, not including the shares to be owned by the Imperial Japanese Government. The second and subsequent subscriptions shall be opened from time to time, as necessity may require, upon the resolution of a general meeting of the shareholders.

ART. 6. The public notices of this company shall be published in the newspapers in which the public notices of the court of law are published to whose jurisdiction the company is subject in Tokyo, and in the newspapers in which the public notices of the Government General of Kwangtung are published at Tairen.

### CHAPTER II. SHARES.

ART. 7. The share certificates of this company shall all be registered, and each share shall be two hundred (200) yen.

ART. 8. The certificates of shares of this company shall be of the following seven denominations:—

One-share certificates.

Five-share certificates.

Ten-share certificates.

Fifty-share certificates.

One hundred-share certificates.

One thousand-share certificates.

Ten thousand-share certificates.

ART. 9. The certificates of shares of this company shall bear the name of the company, the date of registration, the total amount of capital, the amount of each share, the amount paid up, and the number of certificate. They shall bear the signature and seal of the President.

ART. 10. As to the payments upon the shares, twenty (20) yen per share shall be paid in at the first call. For the second and subsequent calls on the shares, the President shall determine the amount to be paid in as well as the time of payment, and notice of the same shall be sent to each shareholder at least sixty (60) days in advance. However, each call on the shares shall not exceed twenty (20) Yen per share.

ART. 11. If a shareholder fails to make payment by the date fixed for payment on the shares, delay interest shall be charged him at the rate of four (4) sen per day per one hundred (100) Yen on the amount due.

ART. 12. If a shareholder fails to make payment within fifteen (15) days from the date fixed for the first payment on the shares, the company may demand that payment be made within thirty days; and if the money is not paid in by that time, the company may notify him that his rights as a shareholder of this company shall be forfeited.

In the case mentioned in the previous paragraph, whose rights are lost, the application money previously paid shall not be refunded.

ART. 13. If at the second and subsequent calls on the shares a shareholder fails to make payment within fifteen (15) days after the



date fixed for payment, the company may notify such shareholder that payment must be made within thirty (30) days, and that, in the case of failure to comply, his rights as a shareholder of this company shall be forfeited.

When, in the case mentioned in the previous paragraph, a shareholder has forfeited his rights as such, the company shall notify each assignor of shares that payment must be made within fifteen (15) days and the assignor who first pays the amount in arrears shall acquire the shares. If no assignor pays, the company shall sell the shares at auction. If the amount realized by the auction is not sufficient to cover the amount in arrears, the previous shareholder shall be required to make good the deficit. If the previous shareholder does not make good within fourteen (14) days, the company shall demand performance of the assignors.

ART. 14. The liability of the assignors mentioned in the preceding Article is extinguished after two years from the time when the assignment was entered in the Register of Shareholders.

ART. 15. If a company or any other legal person, public or private, owns the shares of this company, it shall appoint its representative and have his name entered in the Register of Shareholders of this company. If shares are held by two or more persons in common, they are required to appoint one person to exercise their rights as shareholder. Persons holding shares in common are jointly and severally liable to the company for the payment upon the shares.

ART. 16. When shares are to be assigned, the parties concerned shall make a written statement in accordance with the form prescribed by this company and apply for the alteration of the certificates of shares. However, when a person inherits shares by virtue of succession, bequest or any decision rendered by a court of law, such person is required to attach to the statement referred to a certificate of the census official or other documents as evidence that the company may deem necessary.

The assignment of any share shall not be valid unless the name and domicile of the assignee are entered in the Register of Shareholders and the name of the said assignee is entered on the share certificate in question.

ART. 17. Should any certificate of shares be destroyed, mutilated or lost, the shareholder may apply for a new certificate of shares by presenting to the company a statement giving the facts in the case and signed by two or more persons as guarantors. However, in case of loss, a public notice to that effect shall be given at the expense of the applicant, and the new certificate of shares shall be issued only when no objection is raised within sixty (60) days from the date of the said public notice.

ART. 18. If any shareholder wishes to change the denominations of his certificates of shares, the said certificates shall be presented to the company together with the application.

ART. 19. For the registration of a change of an owner's name on a certificate of shares, the issue of a new certificate of shares or the alteration of the denomination of a certificate of shares, the prescribed fees of the company shall be collected from the applicant.

ART. 20. During a period not exceeding thirty (30) days immediately preceding each ordinary general meeting of shareholders, the company shall suspend the assignment of shares.

### CHAPTER III. SHAREHOLDERS.

ART. 21. The shareholders of this company shall be limited to the Governments of Japan and China, and the subjects of Japan and China.

ART. 22. The Imperial Japanese Government shall furnish the following properties as capital, and the company shall deliver to the Government five hundred thousand (500,000) shares, amounting to Yen 100,000,000, which is the value of the said properties:

The existing railways (except the rolling stock now actually in use, as well as the rails and accessories of the Mukden-Antunghien Temporary Railway).

All properties attached to the railways referred to, except such properties within the leased territory as may be designated by the Government.

The coal-mines at Fushun and Ventai.

ART. 23. Each shareholder shall have the right to one vote for each share owned by him.

ART. 24. The shareholders and their legal representatives shall report to the company their domiciles, names and a copy of their legal seals, when they require shares. When any alteration in the above facts has taken place, similar measures shall be taken.

### CHAPTER IV. GENERAL MEETING.

ART. 25. An ordinary general meeting shall be called by the President twice every year in the month of June and December. An extraordinary general meeting shall be called by the President when the President or the Inspectors deem it necessary to do so, or when the shareholders owning at least one-tenth or more of the total number of shares have presented a request to that effect, stating the object of the general meeting and the reasons for calling the same. When the shareholders have requested a general meeting to be called, the President shall take steps for calling the same within fourteen (14) days.

ART. 26. The discussion at a general meeting shall be confined to the subjects previously announced.

ART. 27. The date, time and place of a general meeting shall be determined by the President, and a notice to that effect shall be sent out to the shareholders at least thirty (30) days in advance of such meeting.

ART. 28. The President shall act as chairman of a general meeting.

ART. 29. The shareholders may appoint only shareholders of this company as their representatives, and their powers of attorney shall be presented to the company.

ART. 30. The chairman of the general meeting shall be allowed to exercise his right to vote as a shareholder.

ART. 31. Resolutions of a general meeting shall be adopted by a majority vote of the shareholders present. In case of a tie, the chairman shall have the casting vote.

ART. 32. The issuance of company debentures or amendments to the Articles of Incorporation shall be decided by a majority vote, with more than one-half of the total number of shareholders and also of shareholders representing a half or more of the capital stock present.

If, in the case mentioned in the preceding paragraph the necessary quorum is not present, a provisional decision may be made by a majority of the shareholders present. A notification giving the essential details of the said provisional decision shall be sent to each shareholder, and another general meeting shall be called in not less than one month.

At the second general meeting the said provisional decision shall be confirmed or rejected by a majority vote of the shareholders present.

ART. 33. The minutes of a general meeting shall be recorded in the Proceedings of the general meetings, and the same shall bear the signatures and seals of the President and chief officers present.

ART. 34. The chairman of the general meeting may adjourn the meeting or change the place of meeting. The discussion at an adjourned meeting shall be confined to the subjects on which no decision was made at the preceding meeting.

### CHAPTER V. CHIEF OFFICERS.

ART. 35. The chief offices of this company shall be as follows:

President.....	1
Vice-President.....	1
Directors.....	4 or more
Inspectors.....	3 to 5

ART. 36. The term of office of the President and Vice-President shall be five years, and they shall be appointed by the Government subject to the Imperial sanction.

The term of office of the Directors shall be four years, and they shall be appointed by the Government from among those who own fifty (50) shares or more.

The term of office of the Inspectors shall be three years and they are to be elected by the shareholders at a general meeting of the shareholders.

ART. 37. The remunerations and allowances of the President, Vice-President and Directors shall be determined by the Government.

The remuneration of the Inspectors shall be determined by a resolution of a general meeting of the shareholders.

ART. 38. The Directors are required, during their term of office, to deposit with the Inspectors fifty (50) shares of the company owned by them. These shares shall not be returned to their owners even on their retirement from office until all affairs transacted during their term of office shall have been approved at a general meeting.

ART. 39. In the event of the office of any Inspector becoming vacant, an extraordinary general meeting of the shareholders shall be called for the purpose of a by-election, and the new Inspector shall hold office during the remainder of the term of office of his predecessor.

However, a by-election may be postponed until the next general meeting of the shareholders, except when the number of Inspectors has decreased to two or less.

ART. 40. The President shall represent the company and have general control of all its affairs.

The Vice-President shall represent the President when he is prevented from discharging his official duties, and shall act as President when that office is left vacant.

The Vice-President and the Directors shall assist the President, and each shall take charge of a part of the business of the company.

The Inspectors shall inspect the affairs of the company.

ART. 41. During their respective terms of office the President, Vice-President and Directors shall not engage in any other occupation or business under any name whatever without the permission of the Government.

ART. 42. The President shall keep at the head-office as well as the branch office copies of the Articles of Incorporation, and of the Record of Resolutions of the general meetings of shareholders. He shall also keep at the head-office the Register of Shareholders and the Ledger of Debentures.

ART. 43. The President shall submit the following documents to the Inspectors seven (7) days in advance of the date set for the ordinary general meeting of shareholders:

- (1) An inventory of the company's properties.
- (2) A balance sheet.
- (3) A report on the company's works.
- (4) An account of the profits and losses.
- (5) Proposals relating to the reserve funds and to the dividends.

ART. 44. The President shall have in readiness at the head-office before the day of an ordinary general meeting of the shareholders the documents mentioned in the preceding Article and the Inspectors' report.

ART. 45. The President shall submit to an ordinary general meeting of the shareholders the documents mentioned in Article 43 and obtain its approval.

The President shall publish the balance sheet when he has obtained the approval mentioned in the preceding paragraph.

ART. 46. The Inspectors are required to examine the documents to be submitted by the President to a general meeting of shareholders and to report their views at the said meeting.

ART. 47. The Inspectors may at any time demand the President to report on the business of the company, and may examine the management of its affairs and the condition of its properties.

### CHAPTER VI. SUPERVISORS.

ART. 48. The Supervisors of the South Manchurian Railway Joint Stock Company may at any time inspect the arrangements of the company's work, or examine the safes and books of the company as well as the various documents and articles belonging to it.

The Supervisors may, whenever they deem it necessary, order the company to report on the various business accounts and the condition of the company.

The Supervisors may attend the general meetings of the shareholders or any other meetings and express their opinions, but they are not entitled to vote.



## CHAPTER VII. ACCOUNTS.

ART. 49. The account of this company shall be settled by dividing a year into two periods. From April to September of every year shall be the first half year and from October to the following March shall be the second half year.

ART. 50. This company shall set aside as a reserve fund one-twentieth (1-20) or more of the profits, whenever they are apportioned until the reserve fund amounts to one-fourth (1/4) of the capital.

Special reserve funds other than that provided for in the preceding paragraph shall be determined by a resolution of a general meeting.

ART. 51. The dividends to the shareholders shall be paid according to the Register of Shareholders as it stands on June 1 and December 1.

ART. 52. When the dividend of the company for any business year is less than six (6) per cent per annum on the paid up capital for the shareholders other than the Governments of Japan and China (hereafter to be styled merely "the shareholders"), the Imperial Japanese Government shall supply the deficiency for a period of fifteen (15) years commencing from the day of the registration of the company's establishment. However, the amount of money to be supplied by the Government shall, under no circumstances, exceed six (6) per cent per annum on the capital paid in by the shareholders.

ART. 53. When the dividend of the company does not exceed six (6) per cent per annum on the capital paid in by the shareholders, the

dividend on the shares owned by the Government need not be paid.

The shares owned by the Chinese Government shall be dealt with in a similar way to those owned by the Imperial Japanese Government.

ART. 54. The payment of interest on the debentures which the company may issue for the reconstruction of the railways, or for the operation of the accessory business, and on those which the company may issue for consolidating or redeeming old debentures, shall be guaranteed by the Imperial Japanese Government.

The reimbursement of the principal may also, if necessary, be guaranteed by the Imperial Japanese Government. The amount of the face value of the debentures to be guaranteed by the Imperial Japanese Government shall not exceed the amount remaining when the capital paid in by the shareholders other than the Imperial Japanese Government is subtracted from the total of the capital (Yen 100,000,000) subscribed by them.

The debentures mentioned in the first paragraph of this Article shall be redeemed within twenty-five (25) years.

ART. 55. For the debentures issued in accordance with the provisions of the first paragraph of the preceding Article, the Government shall supply the amount corresponding to the interest on the debentures.

When the dividend on the capital paid up by the shareholders exceeds six (6) per cent per annum, the surplus shall first be applied to the payment of the interest on the debentures. However, in this case the amount of surplus shall be deducted from the money to be sup-

plied by the Government mentioned in the preceding paragraph.

ART. 56. When there is any surplus after paying the interest on the debentures, as mentioned in the preceding Article, out of the profits of the company's business, the said surplus shall be apportioned to the shares owned by the Governments of Japan and China until the rate is equal on the respective amounts paid up by all shareholders.

ART. 57. The money to be supplied by the Imperial Japanese Government, as provided for in Articles 52 and 55, shall bear interest at six (6) per cent per annum. The interest shall be added annually to the principal, and the total shall be the company's indebtedness to the Imperial Japanese Government.

When the dividend for all shares exceeds ten (10) per cent per annum, the surplus shall be devoted to the redemption of the company's debt mentioned in the preceding paragraph.

## CHAPTER VIII. EXPENSES FOR ORGANIZING THE COMPANY.

ART. 58. The expenses for organizing the company shall not exceed 50,000 Yen.

Of the amount mentioned in the preceding paragraph that advanced by the Government shall be reimbursed by the company.

## SUPPLEMENTARY ARTICLE.

ART. 59. The provisions in Articles 52 to 57 shall be confirmed upon being approved by the Imperial Diet.